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MATTER, LIFE, MIND:
THEIR
ESSENCE, PHENOMENA, AND RELATIONS,
EXAMINED WITH
REFERENCE TO THE NATURE OF MAN,
AND
THE PROBLEM OF HIS DESTINY.

BY H. H. MOORE, D.D.

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DEDICATED

TO

THE REV. DANIEL CURRY, D.D., LL.D.

AS I MEDITATED, TRUTHS AROSE IN MY MIND WHICH I THOUGHT
SHOULD BE SPOKEN;

I WAITED FIVE YEARS IN VAIN FOR SOME ONE TO UTTER THEM ;
AND NOW I RESPECTFULLY ADDRESS THEM TO YOU AS AN EXPRESSION
OF MY HIGH REGARD FOR YOUR CHARACTER
AND ABILITY.

THE AUTHOR.

P R E F A C E.

THIS treatise is given to the public with the hope that it may serve, to some extent, as a check to the advancing tide of Materialism, and define, with some precision, the ground Vitalists should occupy in this great debate. Believing that the things and facts of nature are their own best interpreters, we have labored to shun the metaphysical aspects of the subject, and allow them to speak for themselves and for truth.

If the “new philosophy” is a true solution of the problems presented by the universe, then in matter itself, and in matter alone, should be found an explanation of the cause and origin of all phenomena, especially of such as are vital and intellectual in their character. Having doubts on this subject, we have made a special examination of all the kinds of matter which enter organic bodies and tested their properties, for the purpose of detecting in them the presence of a vital force or any capacity to work themselves into living organisms; and the conclusion reached is, that matter is not, never was, and never can be, till the constitution of nature is changed, the cause of vital phenomena. It follows that, as vitality does not originate in matter, its marvelous forces must have either an independent existence, which logically is inconceivable, or an antithetic cause in a vital sub-

stance. Having thus placed matter and vitality in the field side by side, on the same plane of observation, we have compared and contrasted the forces of the one with the phenomena of the other, and drawn the line which separates the two kingdoms.*

Materialists have been quick to see that the uniform connection which subsists between matter and all manifestations of vitality was their stronghold, and they have made the most of it; but here we have met them, and, as we believe, found it possible to identify clearly life and mind as entities, distinct from each other, and from their associated organisms. On the principle that substance contains within itself the best proofs of its existence, we have compelled the mind to speak out, and proclaim, in its own appropriate way, its individuality and transcendent powers. If such proof shall fail to convince the doubter, we have nothing further to offer.

Materialists dwell largely and minutely upon the supposed influence which the body, and especially the brain, have upon the mind, much of which is true, and a still greater portion a mere fancy; but we have not neglected this point, but have shown, at considerable length, that mind, as one substance, has a still greater influence over the body as another substance. We now submit to the candor of the reader what has been to us, though severe, a labor of love.

CHAUTAUQUA, N. Y., Jan. 12, 1885.

* The locality of a very few things in reference to this line it may be difficult to determine; but we leave them with the satisfaction of thinking that they belong somewhere, and that their exact place will yet be found.

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INTRODUCTORY.

AS preliminary steps to the study of any philosophical question, we assume that man is an intelligence; that he has a knowing capacity specially correlated to truth; that the scope and limits of mental action can be correctly determined; that in the aggregate of truth a part may be known and logically used, though much remains unknown; and, in short, that a knowledge of one's capacity and an ability correctly to use it in the acquisition of knowledge, and to distinguish between the knowable and unknowable, cover the entire field of philosophy.

In accordance with these principles, Descartes, in consultation with his own consciousness, and feeling assured that he uttered what was true, said, "*Cogito*"—I think—that is to say, I AM. The "I am" he regarded as substance, a self-centered something, known to itself by its own self-consciousness. Here was being, an agent, an actor, and thought was one of its modes of activity. The conclusion he reached, in his short argument in regard to himself, embraced

the human race. This basal truth, learned by consciousness, has stood the test of centuries of criticism, and still holds its place in philosophy. It has, however, often unfortunately fallen into unskillful hands, and been greatly obscured by extraneous matters and blind metaphysical considerations. Seen as Prof. Huxley would have us regard it, it amounts to nothing.

Locke starts with the assumption that mind exists; then institutes a long and laborious inquiry into the origin of ideas. Whether he clearly perceived the ground he occupied is doubtful, but it is certain that, even if he did, no one else has been so fortunate. Had he said, in three lines, that ideas are the results of thought, and that it is the essential nature of mind to think and frame ideas, he would have expressed the truth in the case, and been understood. Kant's "Critique of Pure Reason" is a far greater and profounder work in the same line, resulting, however, because of the radical errors it contains, in greater obscurity.

But, begin the investigation of any philosophical question as we may, it is impossible to proceed at any length in any channel of thought without being compelled to distinguish between substance and phenomena—cause and effect. In the conscious act of the being, implied in the expression I think, the ego, the substantive thinker, stands forth attended by the

phenomenon thought. Here is cause and effect. In regard to the facts in this case—facts both of being and phenomenon—there can be no mistake; to doubt is to call in question man's capacity to know, to deny is to deny that man is an intelligence.

Here we have found a clearly-defined and trustworthy starting-place, available in all philosophical investigations. But the inquiry will be made in regard to the essence or nature of this ego, this substance which thinks, What is it? And in reply, once and forever, we confess that we know nothing about it. Whatever it may be, it is at present placed beyond the reach of human scrutiny. The veil which the Creator has thrown around himself, as an infinite spirit-substance, he has cast over all the substances which he has made. We know no more of the essence of an atom of carbon than we do of the essence of the mind or of God. We can from reason, *a priori*, discriminate no more the differences between an atom of carbon and an atom of nitrogen than between an angelic and a human spirit. We are familiar with mysteries, but there are none denser than that which overshadows the nature of being of every kind and every order.



But, does the admission that the essence of substance is unknown tend, in the least degree, to discredit the fact, or hypothesis, if you please, of its existence? If so, then all supposed existences, material, human,

and divine, are called in question. We may know that something is, and this knowledge may be of vast importance, though we may not be able to determine what it is. The propositions are two, and we may positively affirm the truth of the one and confess ignorance in regard to the other. In his crucible the chemist often unexpectedly discovers the presence of an unknown disturbing element; he is unable, as a consequence, to work out results as formerly he has done; he searches for the cause, and finds in the crucible a substance of about the same specific gravity as iron, of a bluish color, very brittle, but not hard, and he gives it a name — *gnidliub*, or something else. On examination he finds he has an unchangeable and indestructible substance, possessing properties and forces unlike those of any other known substance, but of the essence, whose nature finds expression in these properties, he knows nothing. His conviction that he has a thing—a something—would not be increased if he knew exactly what it was and had handled it a thousand times. His experience would be, in the same situation, necessarily the experience of every other intelligence.

This view of the reality of substance of unknown essence harmonizes fully with all the laws of logic. Mind grasps the ideas of the properties and forces of the substance, for they come within the range of its powers; it clearly grasps the fact of the exist-

ence of a something whose nature finds expression in these properties ; and between the mind and its unknown essence there is no collision, no contradiction, for the mind has no conception, not even the slightest conjecture, in regard to it.

One of the fatal mistakes which Prof. B. P. Bowne makes,* in his theory of Metaphysics, is, that our knowledge in regard to the nature of things is a limit to the things themselves, so far as we are concerned ; and as we know nothing of the nature of substance, in regard to matter he denies its existence. We may be able to comprehend all there is in the proposition that two and two make four, but in the proposition, *Mind thinks*, there is but little we can comprehend beyond the naked fact. Of the nature and structure of the mind we know nothing ; how it can frame a thought, we have no conception ; and yet, notwithstanding these basal mysteries, we know that mind thinks. The little we are conscious of in the fact compels us to hold for true, that much more than we know exists.

Our thoughts simply define the limits of our knowledge in regard to things, but can have no bearing upon the much or little of the things themselves. My inability to know the essence of any substance is not, therefore, any proof of its non-existence, or that it exists out of relation to my thought.

* "Metaphysics," p. 7.

If a man were sure that his mind was commensurate with the nature of all substance, material, ethereal, vital, mental, spiritual, angelic, and divine, he might regard his thoughts as the limits of things and being. But what human thought may be *a priori* about things is no test of their intrinsic nature, of their properties, forces, or of any thing in regard to them. In this field of study every hypothesis, every conjecture, must be verified by experimental demonstration to be of any value. That a group of uniform phenomena, continuing from age to age, must have a basis and a cause in unchangeable substance, though in essence unknown, the laws of clear thinking require us to believe.

The time was, we presume, when the Creator, as the thinking subject, conceived the idea of a universe of being; and the things which now exist, with their properties and forces, may be regarded as an expression of the thought which was then in the divine mind. Were man infinite in wisdom he would be able, *a priori*, to grasp this idea; but, as he is finite, with a weak and sluggish capacity to know, he is compelled to study his Creator's works, and after all is learned which a human being can understand, it is probable that not half the letters of the alphabet of that divine idea are known. The human mind does not create nor give order to things; rather, the things instruct, direct, and give order to our thoughts. The

fabric of thought can have no foundation for its support but the pre-existing and permanent fabric of nature. Should we witness "the wreck of matter and the crash of worlds," all that we accept as its philosophy would go down with it. The phantasy called Idealism would not last an hour.

Prof. Bowne says, in his Preface: "Physics is founded upon Metaphysics." A broader statement, and one further from truth, has seldom been made. The idea is, that things must be brought into harmony with our thoughts without experience in regard to them. But how little there is which strikes all minds alike; and in the myriads of cases of difference, to whose mode of thinking must nature conform? If physics is to take shape and bring itself into harmony with all the minds which think of it, it must be Protean indeed. But away from physics, and never having heard of such a science, what conception could we form of the constitution of matter? Simply airy nothingness. We had supposed that ideas symbolized in words, in some cases represented things, as that the word watch symbolizes the idea we have of a time-marking machine; but Prof. Bowne teaches us that the idea is the basal real—the true thing—and that the watch is not substantive, but an appearance emanating from this idea; also, that physical appearances have no substantial basis, but that they emanate from the idea we have of them.

Among the least of the difficulties of this theory is the fact, that idea and appearance do not always harmonize. We all have the idea that the sun is about 800,000 miles in diameter; but to some it is, in appearance, the size of a half-bushel, to others the size of a cart-wheel. If possible, let us simplify and make clear this corner-stone of Idealism. The idea expressed by the word gold is all the real, true gold there is; the yellow phantom which passes as money is not substance, but simply an appearance of a physical expression "founded" upon a metaphysical idea.

But let us inquire, Which existed first, the gold or the idea we have of it? Did the idea bring the gold into existence and invest it with its properties? or did the gold, existing now as it existed before man was made, give form, color, and precision to our thoughts concerning it? Would we have had the idea had gold never existed? How long would the idea of gold last, how much would its symbol signify, and how much would it be worth in the markets of the world, should this apparition be dissolved? Quite as much as the philosophy which teaches such nonsense. Take away the substantive real, and the ideal vanishes like the fabric of a dream. Idealism, in ignoring the known, and in setting aside all the verdicts of common sense, conducts us into the realm of pure fancy, where we can neither positively affirm nor deny any thing; and then, though its arguments,

as Hume says, cannot be refuted, they produce no conviction. Pure Idealism is a perfect vacuum.

The phenomenal world is divided into distinct, vast, and complicated classes or groups; these never essentially change, nor cross the lines which separate them from each other. A stone was never known to blossom as a rose; a rose was never known to join in the songs of the birds; and a bird was never known to reason and worship like a man. To account for the existence of these distinct groups of phenomena we are compelled, by the laws of logic, to postulate separate and different substances as the base and cause of each. Each basal substance has its own distinguishing properties, for it is only nonentity which is without qualities of any kind. The properties of any substance indicate its only possible mode of existence. Substance cannot be conceived of as existing separate from its properties and forces. It is a matter of necessity that each different substance manifest its own properties, put forth its own energies, and none others. Whatever of properties, forces, and energies are in matter can be brought out of it, and there its development ends. Gold cannot be brought out of iron, for the reason that there is none in it. In short, each substance in existence must produce its own phenomena, and it can produce none other.

Each substance itself is unchangeable in essence,

but as every substance is related to other substances, their forces, as the result of contact and union, are subject to endless modifications and the development of vast power. Such is the origin of earthquakes, cyclones, and of all the energies and activities of the physical world. Every substance is a self-centered source of energy. As substance is unchangeable, its properties, *per se*, must ever remain the same. The modifications they experience by contact with the properties of other things are only temporary, ending when the contact ceases. Oxygen, when united with hydrogen, gives us water; united with sulphur, it gives us sulphuric acid; then, separated from both, it appears as pure oxygen. Neither in its essence nor properties did it at any time, *per se*, experience any change. Ages of such experience would leave each atom as they found it.

We can proceed but a little way in the study of philosophy without coming into contact with the great problems of life and mind; and it was their claim to consideration, especially in this materialistic age, which brought the following treatise into existence. The new positive philosophy has, during the past half-century, put forth a supreme effort to prove that the matter of the chemist is the source of the vital and intellectual worlds. A vast amount of labor has been performed in this field with no positive results, and for the reason that the method of

investigation has been vicious and absurd. In the study of the endowment of matter arguments and deductions are of no value whatever; all such questions can be settled only by experiment. Who by argument could have demonstrated, *a priori*, that oxygen and sulphur, by union, would produce the king of acids? Or that water is composed of the two kinds of matter known as oxygen and hydrogen? All the known facts of physics have been ascertained, not by reasoning and logic, but by repeated tests and trials. Along this line of thought proud Reason can boast of not a single triumph. The question, then, is: Have we, or has the chemist, by actual, palpable experiment, demonstrated that life and mind are the outcome of matter? As this has not been done, all that has been written on the subject as argument, analogy, deduction, and inference is of no value. The question still remains one of palpable demonstration, to be effected by experiments with the matter of the chemist.

If by experiment mental and vital results have not been brought out of matter, and if we have not the courage to look in that direction for them, we shall find ourselves compelled to regard these classes of phenomena as having each a substantive basis of its own. But it is very difficult for us, educated as we have been, to think of life and mind as substances. We have so long and so uniformly associated the

idea of substance with rocks, trees, the ground, and other forms of matter, that it is hard to make the term stand for any thing but such things as are solid and tangible. But the difficulty is not intrinsic and necessary—it is altogether the result of habit and custom. When we become familiar with the fact that we know no more of the substance, or of an entity of matter, than we know of ether, life, or spirit; and that we know nothing of any kind of being except as the fact of its existence is made known in its phenomena, we shall be as free to postulate substance as the base of one order of phenomena as of another. The phenomena of any substance is the substance present, revealed as a reality, putting forth its energies and activities as expressions of its hidden nature. Thought, will, and feeling imply a mind present and in action; a heaving breast and a beating heart are at their base vital energies. As the failure to prove that life and mind are the outcome of the matter of the chemist is absolute and final, we know of no solution of these problems which is left to science, except the assumption that each class of phenomena has a substantive basis of its own.

Believing, then, that man exists as a being—that he is an intelligence, and that nature is an open volume full of truth relating to him and his destiny—we propose to consult its pages and wait in silence wherein its voice may be heard. A labor of love,

not a pastime of idle speculations, is before us. Themes of vast practical importance to the nature and destiny of man will come up for consideration. Though we use in the frame-work of our argument very common and well-known material, we shall not tread a familiar path. If the principles and laws we find in nature we also meet again on the high plane of practical Christianity, realizing in that realm a special development and application, having a still further onward and upward look, the supposed gulf between science and religion will disappear, and the unity of truth be made manifest.

If our reading of nature be correct, it will be valid for all time to come, for its laws will not change. The following presentation of our line of thought may be as rough and crude as the gold-bearing quartz quarried from the mountain, and it may be necessary for others of far better qualifications to take it up and separate the precious metal from the dross; but even in that case we shall feel that we brought the gold to light, and have not written in vain.

The ground over which we propose to conduct the reader we have thus briefly indicated. We shall aim especially to leave Materialism a wreck and a ruin behind us, and make conspicuous the truth that this, primarily, is a vital world. We shall touch Idealism only as it intrusively crosses our pathway. Speculative philosophy—mostly a mere waking dream—we

shall strive to shun, and if at all we enter the realm of metaphysics, it will be to bring it down within reach of common sense, and chain it more closely to the palpable facts of nature. Our argument we submit to the critic, nor care how savagely he handles it, providing only he uses his knife in the interests of truth. Our purpose in writing we commend to such as are thoughtful, perplexed, and despondent in regard to the nature and destiny of man.

MATTER, LIFE, AND MIND.

CHAPTER I.

THE MATTER OR STUFF WROUGHT INTO ORGANIC BODIES.

“If we look at matter as pictured by Democritus, and as defined for generations in our scientific text-books, the notion of conscious life coming out of it cannot be formed by the human mind.”—PROF. JOHN TYNDALL.

§ 1. *The constitution of Matter.*

WE enter upon the study of Matter, not for the purpose of understanding its constitution for its own sake, but to ascertain if Life, as Materialism assumes, is one of its properties.

We conceive Matter, as we know it, to be an aggregation of reals, the product of infinite Wisdom, absolutely good in itself, and perfectly adapted to the ends of its existence. As much by the wealth of its properties as by the depth of its mysteries, it carries us to the borders of the infinite unknown on which it laps, and any words of opprobrium cast upon it we regard as reflections upon its Maker. In the phenomenal world there is such an unfolding of its properties, so much is known and so much con-

cealed, that the constitution of Matter must ever remain a problem of thrilling interest.

By the use of the atomic theory and the principle of classification, it will not be difficult to form a correct idea of all the known Matter of this globe; and then it will be short work to select from the mass and characterize the kinds which nature uses in the structure of organic bodies.

We adopt the Atomic Theory of Matter as in some form rigorously true, and as affording the only logical conception we can form of its constitution; but whether true or not, it is the only theory on which a scientific statement of the material universe can be made.

At present chemical analyses yields sixty-five different kinds of elemental atoms, and it is probable that future discoveries will increase the number, but not largely, as we are quite as likely to find new orbs in space as to discover new kinds of matter in the globe.

An atom of oxygen represents fully one half of all known Matter; an atom of silicon, one fourth; an atom of aluminium, magnesium, and calcium, one eighth; an atom of potassium, sodium, iron, and carbon, one twentieth; an atom of sulphur, hydrogen, chlorine, and nitrogen, one fortieth; and the remaining elements, fifty-four in number, compose about one twentieth part of the Matter of the globe.

Thus all known Matter is epitomized by some sixty-five elemental atoms, billions of which brought to-

gether form a mass less in size than a pinch of snuff.

Persistent efforts have been made to demonstrate that all Matter is composed of one substance, hydrogen, but such attempts to accomplish the absurd must be regarded simply as freaks of the scientist, or as a spurious figment of a restless human brain. A disposition to simplify and make easy the problems of Nature may have inspired these speculations; but the hypothesis has not a fact for its support; rather all the facts connected with the constitution of matter look in the opposite direction.

In its meditations upon Matter, the mind—even the mind of the idealist—can find no resting-place except in an intellectual discernment of its primary atoms, or in imaginary points, which it substitutes for them. With our present knowledge all parties and creeds find that in the study of physics the practical adoption of the atomic theory is a matter of necessity.

The present arrangement of the elements in chemistry into monads, dyads, triads, tetrads, pentads, and hexads, is based upon the reality and unchangeableness of the atoms.

Although vast strides have been made during the past quarter of a century in the study of physics, every step, every revolution, has strengthened the atomic theory. It is, in fact, the key to the constitution of Matter.

An elemental atom may be defined as a simple,

ultimate, indivisible, unchangeable, self-centered, indestructible substance, subject to the law of affinity and gravitation, and only one of which can occupy the same space at the same time.

The ultimate atoms are so small that they remain invisible, even when magnified two thousand diameters. Prof. Huxley thinks that an atom, if it could be measured, is less than the millionth part of an inch in diameter. The mind may be incapable of forming a definite conception of any thing so small, nevertheless, it has no trouble in grasping the fact, as it grasps other incomprehensible facts.

We have seen above that the universe is known to contain sixty-five different kinds of elemental atoms, and that they represent sixty-five kinds of Matter, or all the known Matter of the globe. Each kind of Matter is wholly unlike all other kinds. Each atom in essence is the same as all others of that kind. No one atom can be changed or transmuted into another, for that process would imply both the destructibility and creation of Matter.

§ 2. *Our ignorance of the origin and essence of Matter.*

Of the nature or essence of substance we know absolutely nothing; the fact of its existence, notwithstanding the mysteries of its being, the mind is, however, compelled to admit. The Idealist substitutes for atoms mathematical points, which are unsubstantial, and holds that the solid, extended, and

ponderable mass is an illusion; a nothing derived from nothing; an appearance where nothing appears. The vulgar believe that when the burning wood in the stove is consumed it is destroyed, annihilated, gone to nothing; the idealists hold that it came from nothing and is nothing. The two parties are not far apart, and we will allow them to settle their little difference between themselves.

It is possible that the spectroscope may yet be so improved, or an instrument devised, as to enable our coarse senses to detect the presence of single atoms. This power we are anxious to see displayed, and possibly it may be lodged in a sunbeam. As the case now stands the presence of an atom can be known only as it forms in part a molecule or a mass. So attenuated is Matter in its primal state that a globe of atoms isolated by intense heat would be invisible to the eye, and perhaps insensuous to the touch.

It is probable that our globe began its history, long ages ago, as an immense cloud, composed mostly of oxygen and hydrogen, thrown off from the sun. Similar nebulous substances of all magnitudes—some of immense size—may be seen any cloudless night in different parts of the sky. Space is not the infinite vacuum it was once supposed to be. Every August and November the earth passes through a river of meteoric substances which sweep around the sun; and every day and every night in the year it draws to

itself more or less of the loose floating Matter, dispersed throughout space.

As this primal oxygenous cloud, occupying immense space between the orbits of Venus and Mars, swept around the Sun, its attractive force drew to its firm embrace every atom of every element it found in its pathway, the atoms it encountered being, like itself, in an elemental condition. At first the oxygen united with silicon, and a white sand was formed, and then the rocks; it united with hydrogen, and a hot vapor appeared; it united with iron, and the accumulation of this metal commenced; and thus, in the course of great cycles of time, the oxygen cloud grew into the consistency of the earth, as we see it to-day.

Nor are our planetary heavens yet swept entirely clean of loose fragmentary Matter. Meteorites are drawn under the earth's influence all along its pathway around the Sun, and many of them which strike the earth, and thus add to its magnitude, weigh thousands of pounds. The matter of sundered and lost comets is scattered and moving in space, no man can tell whither.

But the foreign substances brought to the earth have added, during the past thousand years, iron, sulphur, nickel, oxygen, and such other Matter as it already possesses, having the same properties and obeying the same laws, but not a new element has been produced. The Matter of our chemists appears to be the Matter of the universe.

It then may be accepted as an undoubted fact, that all the Matter now composing this globe was once in a gaseous state, and that in the form of an immense elongated cloud, or in the form of Thompson's "vortex rings" of fire-mist, it swept around the Sun. Each atom then possessed the full complement of properties and forces received in creation, and through all the ages which have since passed away, the innumerable changes of combination they have experienced have not wrought the slightest change in their essence or properties.

The *properties of Matter* are the *natural* and *necessary expression* of the *forces* which *inhere* in its *nature*, and change or destruction of properties would imply the annihilation of the essence itself, which is unthinkable. Too great emphasis cannot be placed upon the fixity of Matter, the stability of its properties, and the uniformity of its action; as a *liability to change* would render a *knowledge* of Matter *impossible*.

The least change in the oxygen, silicon, nitrogen, hydrogen, carbon, or any one of the abundant elements, would change the constitution of the globe itself, and render it unfit to be the place of man's habitation.

It is probable that other elemental substances may yet be found, or that some substance, now regarded as elementary, may be broken up into simpler elements, but such discovery would not affect the

questions under discussion. The properties of Matter are the same whether the elementary substances are sixty-five, or any other number. Or should reasons ever be found for rejecting the Atomic Theory of Matter, our estimate of its properties and forces would not in any manner be affected thereby.

The Atomic Theory of Matter is made a practical necessity in the study of Physics, fully recognized by all classes of investigators, because,

1. No kind of Matter is known except such as elemental atoms represent.
2. All masses of Matter are composed of discrete parts, space intervening between the atoms.*
3. Chemistry has demonstrated that the atoms of different elements are of determinate specific weight.
4. It is susceptible of proof that the atom is a center of force.
5. The Atomic Theory gives us stable things and real entities as facts to start with in the study of the properties and forces of Matter. It enables us to know at every step in the investigation exactly what we are dealing with and what to depend upon.

6. Discard the Atomic Theory, and Matter is a subject which defies both definition and intelligent investigation. Chemistry deals with atoms, their properties, forces, and relations, as Astronomy does

* In the expansion of a body the space between the atoms is increased, in contraction it is lessened; atoms, *per se*, do not change.

with heavenly bodies and the laws by which they are governed.

7. The theory harmonizes and sums up the discoveries made by Dalton, Richter, Gay-Lussac, Avogardo, Ampère, Sir William Thompson, and Clerk Maxwell in regard to the constitution of Matter.

8. Since the time of Dalton it has served all classes of investigators as an uncerring guide in the study of Matter, and in no instance has it led them astray.

9. Discard the Atomic Theory, and there is nothing left us but the mathematical points of the Idealist, and then we have nothing. The existence of Matter as substance is denied, and the word *nihilism* should be substituted for knowledge.

§ 3. *The kinds of Matter which compose Organic Bodies.*

The Matter principally used in the structure of organisms, both vegetable and animal, are oxygen, hydrogen, carbon, nitrogen, sulphur, and phosphorus. In some cases Nature appropriates the following elements, but more sparingly, namely: chlorine, bromine, iodine, iron, potassium, sodium, calcium, magnesium, silicon, zinc, copper, mercury, and arsenic.

Let us carefully examine these substances, each by itself, and detect, if possible, any property or force they may contain, vital or otherwise, which will cause them to assume the form of organic bodies, either animal or vegetable.

Let it be borne in mind that, whatever changes may result from mixing or compounding the atoms, no change can be wrought in the essence or nature of the elements themselves. The union of different elements may modify endlessly their forces, but in no case can the substance itself be changed or its properties altered. Every atom of Matter is now what it ever has been through all the ages of the past, and must ever remain the same, or cease to be.

Oxygen, a colorless gas, constitutes, as we have seen, one half the Matter of the globe. It seems to be equally abundant in the sun, stars, and planets. Mixed with nitrogen, it gives us the air we breathe; united with water, eight parts of oxygen to one of hydrogen, it gives us the waters of the globe. Neither air nor water seem to possess a trace of the nature of the elements of which they are composed. The forces of the individual elements seem, for the time being, to be destroyed by the modifying effects which the one element has upon the other. Oxygen is incombustible, yet necessary to combustion. Without it animal life cannot exist. It possesses an energetic tendency to unite, when the conditions are suitable, with all other elements except fluorine. United with carbon it forms a gas, and in this condition immense quantities float in the air and serve as food for the vegetable world. In the formation of coal, the atmosphere was comparatively impoverished by the removal of its carbon; but by this means

earth was fitted to be the place of man's habitation. Vegetation appropriates the carbon and rejects the oxygen. Oxygen slowly unites with iron, forming rust ; it unites with carbon and hydrogen, forming alcohol ; with sulphur it forms sulphurous acid ; with sulphur and hydrogen it forms the oil of vitriol ; and with chlorine forms chlorotic acid. With silicon it unites, forming a white sand and quartz ; and really it is the mightiest and most generally pervading material force of the globe.* Its abundance, and the scope of its endowments, make it a king in the realm of Matter ; and its presence, far more than all the other elements combined, causes the earth, the rocks, the air, and the waters of the globe to be as we find them.

Hydrogen is an abundant, colorless, transparent, and odorless gas. Its atoms are the smallest and lightest of known substances. In attempts to liquefy it by heavy pressure, it has found its way through iron cylinders four inches in thickness. If breathed more than a moment or so, it destroys animal life, and yet, as an element, it enters largely into the composition of all bodies, animal and vegetable. It forms a ninth of the waters of the globe ; is about a tenth part of the substance of the human body ; and enters other animal organisms. Before coal oil was manu-

* When we come to speak particularly of the structure of organisms the peculiarities of this element will be called up for further consideration.

factured balloons were filled with this gas, it being more than fourteen times lighter than the air. Its principal compound is water, though it unites reluctantly with nitrogen, forming ammonia, and with some other substances. In the processes and changes caused by evaporation, it becomes freely mixed at a low temperature with oxygen to no effect. This condition of things may continue indefinitely, and not a drop of water be formed. It is often that many square miles of space in the heavens are thus occupied by these gases. But when penetrated by a flash of lightning from a passing cloud a union of the atoms instantly takes place, the molecules aggregate into drops, and the deluging rain falls upon the earth. The concentrated gases tend to create an immense vacuum in the heavens, and the inrushing of the atmosphere to fill the space makes upon the ear the impression of detonating thunder.

Hydrogen unites with carbon, forming a great variety of oleaginous compounds, and is largely used in the structure of all organic bodies.

Nitrogen, in appearance, cannot be distinguished from oxygen, yet its properties are the direct opposite. What there is in the essence of the one element to cause it to differ so radically from the other, no mortal mind can even conjecture. Nitrogen destroys combustion, and is fatal to animal life; yet, mixed with oxygen, it constitutes three fifths of the air we breathe. The reluctance with which this gas unites

with other substances gives to gun-powder, nitro-glycerine, gun-cotton, and some other substances their explosive power. On the least provocation nitrogen lets go its slight hold upon the other elements, and then, in an instant, they demand as gases perhaps a hundred thousand times the room they needed as solids or liquids. The disintegrating forces of Nature are mostly found in nitrogen. In the growth of organic bodies, animal life, far more freely than vegetable, makes use of this substance.

Carbon takes rank as one of the abundant substances of the material world. In a pure state it is never found only as a solid. If kept away from oxygen, the most intense heat yet applied makes no sensible impression upon it. Carbon assumes many forms. It is the coal of wood, after the other substances have been burned away; it is the sooty substance which accumulates on the wick of an unsnuffed candle; it is plumbago, or black-lead, the substance our pencils are made of; the deposits of coal found in all parts of the earth, when pure, are the carbon of ruined forests of vegetation; and the precious diamond is nothing but carbon crystallized. Both the vegetable and animal worlds are largely indebted to this substance for the Matter of their organisms. Carbon readily unites with oxygen, forming carbonic acid, a gas of extreme importance in the organic world. Without it neither vegetable nor animal structures could be formed. It has been estimated by Prof. Mivart that every

square mile of the earth's surface contains as much as three hundred and seventy-one thousand four hundred and seventy-five tons of carbon in a gaseous state.

The four elements now characterized constitute mostly the substance of protoplasm.

Silicon, next to oxygen, is the most abundant of the elements, constituting about one fourth the matter of the globe. It is never found perfectly pure, but always in alliance with oxygen, for which it has a strong affinity. This compound is called silica, of which white sand, white pebbles, quartz, and flint are good specimens. Silicon has an affinity for carbon, calcium, and many other substances. It is the rock-builder of the globe; and were not its power, to a large extent, neutralized by the disintegrating force of nitrogen, the globe would long since have been solid rock.

Sulphur, in Iceland, Sicily, and other volcanic countries, is often found in its pure elemental state. In other localities it occurs in combination with carbon, zinc, coal, copper, and other metals. Sulphur is a well-known yellow solid, and possesses many peculiarities. At a certain temperature it is always in a crystalline condition. Its weight is just double that of oxygen, and it is the base of the strongest acid known to Nature. It is used only sparingly in the structure of organic bodies.

Chlorine is one of the abundant, energetic, and useful elements. It is never found pure, and yet it is somewhat careful of the company it keeps. It is a

greenish-yellow gas of an irritating and disagreeable odor. It is a heavy substance, and has an energetic affinity for some of the metals. It is the powerful bleaching agent of civilization, but is more universally known as one of the components of common salt; salt being the chloride of sodium.

Iron is an element so well-known that it requires no description in this place. In animal structures it constitutes an important portion of the blood.

Magnesium may be found in immense quantities in sea-water, and in combination with lime and carbonic acid. United with oxygen it forms the magnesia of commerce and medicine.

Aluminium is an abundant element, and may be found in clay and slate; it combines with silicon and potassium in the formation of feldspar, and is an essential ingredient of granite, gneiss, and porphyry. The ruby, one of the most valuable of the precious stones, is a crystallization of aluminium and oxygen.

Potassium is a metal which constitutes an important part of quartz rocks, and is the base of all sodas and baking preparations. It is the potash or alkali of Nature. Man has no means of extracting this metal in large quantities from the azoic rocks, where for ages it has been locked up. Vegetation, however, will draw the treasure forth, and we obtain it from the ashes of burned wood. This element gives to all alkalies their peculiar properties. In both the vege-

table and animal kingdoms it plays an important part.

Sodium, a component part of common salt, is found in all parts of the earth. Its presence gives character to the great Salt Lake of Utah. Immense beds of rock-salt are found in different parts of the earth. The most remarkable are in Poland, Bohemia, and Spain. The bed in Poland is five hundred miles long, twenty miles broad, and twelve hundred feet deep. The bed at Cordova, Spain, is a mountain of salt, five hundred feet high, and the salt is of the purest quality. Where these saline deposits now are, there were once deep depressions in the earth contiguous to a salt sea, and at high tides they were flooded with salt-water. During long ages, as the water evaporated the salt was precipitated to the bottom, till it filled the depressions.

Calcium is a light, yellow metal, which quickly oxidizes in the air. Common lime is the oxide of calcium. The marble, chalk, and limestone formations of the globe are largely composed of this substance. It enters into the structure of animal organisms as bones, and the shells of mollusks are mostly composed of it.

Arsenic is a non-metallic substance of a steel-gray color, and, when free from tarnish, is of a brilliant luster. It is sometimes found pure, but oftener combined with silver, iron, nickel, cobalt, antimony, and sulphur. It is a very brittle substance, and may

easily be vaporized. Taken into the stomach in sufficient quantity it destroys animal life. It is sparingly used in the structure of organic bodies.

Iodine is obtained from the ashes of sea-weed, and usually occurs in crystals and scales. It is a bluish-black solid, and has a metallic luster. It has an aerid odor and taste, and though a deadly poison, it is made available as a medicine. In its pure state the smallest quantity colors starch blue. At a moderate heat iodine is vaporized. Chemistry has never detected its presence in animal organisms. In sea-weeds it is abundant.

Phosphorus is a yellowish, semi-transparent solid, resembling wax. In its native state it is found diffused throughout the older rocks. As by the action of the elements these rocks are disintegrated, it goes to the formation of soil, and its presence adds greatly to its fertility. Thus it becomes available for the structure of vegetable organisms. From the vegetable it is transferred to animal bodies, and we obtain it mostly from seeds and bones. It is never found pure, but combined with oxygen and calcium. So great is its affinity for oxygen, that the friction of an icle or the elevation of the temperature a little above the melting point will cause it to take fire, and then it burns with great energy. Without phosphorus organic bodies would experience but a slow and dwarfed development.

We have now noticed and characterized with suffi-

cient clearness, we hope, all the kinds of Matter which Nature uses in the structure of both vegetable and animal bodies. Thirteen of the elements noticed compose at least thirty-nine fortieths of the Matter of the globe, and the first four of the number not less than nine tenths of the Matter of all organic bodies. Gold, silver, copper, tin, and the other elements not mentioned, have no place in vital structures. Thus it appears that Matter has no peculiar mysteries, contains no secret power, and that the most active and energetic kinds of Matter are those which are the most common and abundant. The ground, the stones by the way-side, the air, and the running brook, we may say, constitute Nature's inner sanctuary, if it have any.

§ 4. The sway of Oxygen over other kinds of Matter.

Oxygen is found every-where. There is scarcely a metal, mineral, or gas with which it is not combined. In granite and in all the older rocks immense quantities of it have remained fixed for ages. It is as abundant thousands of feet down in the bowels of the earth as on the surface; and the tops of the highest mountains, in the form of snow and ice and air, are burdened by its weight. As an energetic and ever-active element, whatever it has power to do, it accomplishes openly before our eyes.

In its universal diffusion, does oxygen display an ability, or the least tendency, to generate either vegetal or animal life? Many facts clearly indicate that,

in the inconceivably remote past, all the Matter of this globe was in a state of igneous fusion: also, that at a period still more remote, it was in its elemental state—when, as a gaseous globe, its diameter was some thousands of times greater than now,—in this atomic fire-mist a war of elements raged, which, in force and fury, were what we see on a small scale in the cyclones of flame which now frequently take place in the Sun. Such is the nature of oxygen, that in the laboratory, at a certain temperature, it will devour steel and the diamond as if they were but paper. The burning of a city, amid a tornado of wind and flame, is but the unrestrained action of oxygen upon the buildings. Its affinity for some elements is much stronger than for others; and this necessitates the breaking up of old alliances and the formation of new ones. The stronger alliances were first formed in the structure of the granite rocks. At the same time immense quantities of oxygen and hydrogen united, amid the play of lightnings and thunders that shook the earth's mass, and enshrouded the globe with burning vapor; other quantities united with carbon, forming a gas which constituted a large part of the lower atmosphere; and still other portions sought alliances with calcium, magnesium, and all the other elements, except fluorine.

It was under such a condition of things that the globe became impregnated with oxygen; and can the acutest observer detect the slightest tendency on its

part to generate life, or to work Matter into organic bodies? In the primitive action of Matter, the nearest approach its forces could make to the generation of life would be effected by the fury of warring flames.

Under the sway of the unvarying laws of its being, each part of Nature accomplishes the purpose the Creator intended. In the formation of water by the union of oxygen and hydrogen we witness the obedience of these elements to a divine command. The oxygen now in the atmosphere is not the accidental remainder, the mere surplusage which was left, after every thing else was supplied. Nitrogen, having but the slightest affinity for any thing, was allowed to float freely anywhere, and as a result our atmosphere is composed mostly of a mixture of oxygen and nitrogen. Apparently we have the nitrogen because nothing else will have it; we have the oxygen because every thing else has a full supply, and there is an abundance left for us. This even balancing of forces is the result of many complications, and the thousands of daily changes which occur do not disturb their equilibrium, indicating that a presiding will exists somewhere.

Professor Miller makes the following estimate of the elements of the atmosphere:

Oxygen	1,233,010	billions of tons.
Nitrogen	3,994,593	" "
Carbonic acid.....	5,287	" "
Watery vapor.....	54,460	" "

§ 5. A Non-vital Globe, or the reign of mere Matter.

Let us now divest our minds of all conceptions of Life and organic structures, and look upon the globe as a mass of mere Matter. Let mid-ocean and ice-locked islands, and deserts of sand and rock, everywhere prevail. The idea is not new, for astronomers teach us that the moon is such a rocky, cheerless orb. Were it not for the presence of Life earth would present a barren, desolate waste, in which an imaginary spectator might witness the play of earthquakes, volcanoes, hurricanes, and storms ; rivers might run and billows roll ; there might be bleak mountains and desolate valleys ; but such a world would be without a flower, without a bird, and without a living thing. We have been too long familiar with the varieties and beauties of organic bodies to be astonished at their presence, or to be able to realize the desolations of their absence. If the Mind, however, could be wholly occupied with mere Matter and its forces, the appearance of a spire of grass or of a flower would strike it as the marvel of marvels. Were our eyes familiar only with the desert, how would the appearance of the fleet-footed antelope, or the swoop of an eagle, or the song of the nightingale, or the marching of an army of men, impress us ? The wonder would be, what had put together and into shape such masses of Matter ; the still higher wonder would be, their activity. A tree standing in such a waste, or a rose

blooming there, would be regarded as a miraculous phenomenon.

The idea that the waters, the rocks, the dirt, or the sand had worked themselves up into the flower, or the eagle, or the tree, could not be embraced as a truth by the human Mind. An angel brought out of a block of marble, as a sample of skill, is not to be compared to the structure of a flower or of the humblest worm.

§ 6. *The Sway of Life on Earth.*

Whence, then, came this organic world, composed of vegetable and animal structures, with which we are so familiar? The organic bodies which have existed in the past, and which now exist, in number and variety surpass human comprehension. A considerable portion of the earth's surface is formed of the remains of the dead, and still earth, air, and the waters swarm with living existences. Many islands of the sea, and thousands of miles of sea-coast and promontory, are but the remains of the coral and shell-fish. Much of the Matter of the globe has been incorporated in different organisms scores, and probably thousands, of times; and the intercourse and commerce which is going on between the organic and the inorganic world has been immense and long continued.

It has been estimated by Prof. Faraday that, to meet the demands of the vital or organic world, not less than a million billion tons of inorganic Matter are

annually consumed ; that is, wrought into organic bodies, and probably half that amount is given back to the inorganic world again. The commerce between inorganic and organic nature, exceeding by far the exchanges of all nations, prevents the equilibrium of the elements, fixity, and death. Take Life away from the earth, and the forces remaining, such as heat, affinity, winds, waves, electricity, and earthquakes, would not be sufficient to save it from the reign of universal inertia.

What, then, we again demand, is the cause of this organic world ? Bishop Randolph S. Foster writes carelessly when he says : "A grain of sand and a drop of water are organic bodies." The fact is, an organism is a structure that lives ; it is either animal or vegetal, and possesses at least the organ of assimilation. Man's body is the most complicated of organic bodies, counting his nerve-centers, veins, arteries, and all other distinct parts, his body is composed of millions of distinct organs ; and it is easier to explore a continent as is generally done by travelers than thoroughly examine the human body. A perfect knowledge of the organic world implies the mastery of botany, chemistry, anatomy, physiology, and natural history ; and a life-time is not long enough for any man to acquire this wisdom. Study a world of mere Matter, study it long and well, till the Mind is filled with it and the conception clear ; then enter the world of Mind and Life and organic bodies, and the

conviction will press home with overwhelming force that something more than Matter has come within the range of vision.

§ 7. *The Achievements of Matter.*

But let us give to Matter a fair show ; let us look closely into its endowments, and, if possible, detect vitality there as one of its forces. The mode of Being peculiar to Matter is that of manifestation, and not concealment. If Matter is vital, we shall be glad to see it demonstrate the fact by working itself into an organic body, or in some way submitting to our observation vital phenomena. The motions we witness of suns, stars, and planets—the shrinkage and settling of the earth's crust, beautifying its surface with mountains and valleys—the shock of earthquakes and the heaving of volcanoes—the rush of tornadoes and the flash of lightnings, falling torrents and rushing rivers—the forces of light, heat, and electricity—the attractions and repulsions of atoms, are proofs that in this world of Matter there are forces at work whose greatness and delicacy are inconceivable except by the Infinite Mind.

Prof. Faraday estimates that eight thousand million pounds of oxygen are required daily for the use of men and animals, and for the purposes of combustion, fermentation, and decay. Other kinds of Matter in their sphere are equally active when the conditions are suitable. We are free to admit that the forces of

material nature, in number, variety, and strength, are practically infinite. The forces of attraction and repulsion, of friction and resistance, are ever at work among the free elements, and between masses of Matter extending to all the orbs in space, assuming under different circumstances the aspects of light, heat, electricity, magnetism, galvanism; and not unfrequently the war of elements is terrible, shaking heaven and earth. The forces of the atoms in masses of Matter, here and there, may so perfectly balance each other that they will be passive or inert, but it is folly to ascribe to Matter as a whole, inertness as a quality. The changes and commotions of the Matter of the globe result from the action and collision of contrary forces, and should these forces find rest in a state of equilibrium, Nature, figuratively speaking, would be dead.

But do the forces of Matter ever manifest the least tendency to build up organic structures, or in any way manifest vitality as a property? These are questions of fact, not argument, and the Materialist, to hold his ground, must exhibit the self-organizing power of Matter.

Silicon is ever at work to reduce every thing it touches to solid rock, and nitrogen is just as busy to dissolve and reduce every thing it touches to their elemental condition. Neither element, however, manifests any tendency to work itself or any other substance into an organic body. Oxygen readily unites with all

substances which enter into vegetal and animal bodies ; but with nitrogen it gives us only the air ; with hydrogen, water ; with carbon, an acid ; with iron, rust ; with iron and hydrogen, a jelly-like substance, the peroxide of iron ; and this is its highest achievement.

Elements, when compounded, develop peculiar properties. We cannot use oxygen and hydrogen as a substitute for water, nor chlorine and sodium for salt. The compounds, water, carbonic acid, and a variety of other substances into which enter either iron, calcium, or silicon, as component parts, are physical provisions demanded by the necessities of both the animal and vegetal world ; but these compounds are no nearer organic structures than were the elemental atoms.

The atoms of carbon may be so united as to form in one case charcoal, in another black-lead, in another lamp-black, in another the diamond ; but in no case an organism, nor any approach to it.

Stranger still, hydrogen and carbon, in exactly the same percentage, may be so united that the new composite will possess the properties of the essential oils of roses, of bergamot, orange, lemon, lavender, turpentine, rosemary, nutmeg, myrtle, and peppermint ; but in all this strange development of force by a different arrangement of the atoms of the same elements, not the least approach is made to an organism.

Let us glance at the action and reaction of more complicated compounds, and see if organic structures

are not still within the reach of Matter. Nitrogen will unite with silver and oxygen, forming nitrate of silver; hydrogen will unite with chlorine, forming hydro-chloric acid; now we have five elements and two compounds; let us put the compounds together and see if an organism of some kind—a “cell” or a “calf”—will not be the product of the forces of Matter. We find that the chlorine of the hydro-chloric acid divorces itself from the hydrogen and unites with the silver, which, severing its connection with the nitrogen, produces chloride of silver; and the hydrogen of the hydro-chloric acid unites with the discarded nitrogen and with the oxygen of the nitrate of silver and forms nitric acid. Our original compounds have mutually destroyed each other, and two new ones have taken their place; but we are as far from the living cell, or from any organism, as when we commenced.

The above-described action and interaction of different kinds of Matter may be taken as samples of the innumerable combinations and recombinations which for ages have been going on in Nature's vast laboratory; the forces of light, heat, electricity, affinity, and repulsion have been developed; but in no instance has been produced any kind of a living thing.

Does not the study of the different kinds of Matter suggest the idea that it was not made for itself—that there must be something else somewhere to which it

is correlated? What object of moment can pure Matter itself accomplish? Can the ruby present any value or beauty to the diamond? What part of material Nature is benefited by the coal and oil deposits found in the earth? Are they correlated to the beds and mountains of salt found in different places? Does gold exist for the sake of iron? or for the benefit of any other kind of Matter? Is the air made for the water or the water for the air? Why are circuits given to the winds? that they may smite the sea, and lash it into foam and billows? Is it for the sake of rocks and sands that the dews and rains fall? Is winter a revenge on the warmth of summer? If this is a world of mere Matter, and Matter exists solely for itself, who is wise enough to read the unlettered and voiceless volume and point out its meaning, as a whole or in correlated parts?

§ 8. *The Forces and Scope of Matter Limited.*

The study of Matter simply as Matter, and the relation of one element to another, can have nothing for its aim and *end* but physical relations and physical force; and in such a line of thought vitality should not be thought of. The sum of the new philosophy is embraced in what may be known of Matter and its forces. Prof. Emil Dubois Raymond confesses as much. I quote his words:

“Natural science is a reduction of the changes in the material world to motions of atoms caused by cen-

tral forces independent of time, or a resolution of the phenomenon of Nature into Atomic Mechanics. The resolution of all changes in the material world into motions of atoms, caused by their constant central forces, would be the completion of natural science."

Raymond is as bold as he is honest. "Atomic Mechanics" embraces the entire circle of natural science, according to this high authority. When, therefore, Materialists approach the organic world, their first business should be to demonstrate, by experiment, that vitality is the outcome of "Atomic Mechanics;" and until this is done they have no right to touch the sciences of Biology or Psychology. They first limit natural science to Matter—to the "motions of the central forces of the atoms"—a field of observation in which no trace of life has ever appeared, and with such elements as their only data they discuss the highest problems of Life, Mind, and Destiny!

Now, if vitality is a property of Matter, the palpable fact is capable of unquestionable demonstration; and this is the starting-point in the argument, and we demand it of the Materialist, or, if he is incapable of furnishing the *sensible proof*, we enjoin silence upon him. Volume has followed volume developing and illustrating the philosophy of Mr. Spencer, which is built upon the hypothesis that Matter, pure and simple, has worked itself into the organic and intellectual worlds. Of this vast display of Matter springing into Life, it is our right to witness some little

part. Let it be done in the presence of a competent jury, and thus end the controversy. A few lines from Mr. Spence, instructing us in the art of spinning a hair or constructing a mustard-seed, would be worth more than all the volumes he has written. Value is attached to a mine when the quartz-rock yields gold in paying quantities, but till then it will be folly to throw its stock upon the market, for it will find no purchasers. Tested by the same principle, Materialistic Science, as the case now stands, is worthless—yes, it is a sham and a fraud—in so far as it touches the question of Life, Mind, and the Organic World. It is a mine from which no thought, or fact, or truth has ever been extracted which forms an element in the vital world, Materialists themselves being judges.

We, therefore, repeat with emphasis, that until the Materialist can palpably demonstrate that all kinds of Life, and the highest form of Intellectuality, are the sure outcome of pure Matter, he is not entitled to be heard on any question connected with the Organic or Rational World. In these departments of truth he is an interloper—an officious intermeddler. His hypothesis is a universe of Matter, and by its demonstrable properties and forces—by the “mechanism of its atoms”—let him abide.

The question before us does not relate to any form of Speculative Philosophy; it is a question of palpable fact, recognized, as such, by every attempt made to

produce spontaneous generation. Vitality is, or it is not, one of the properties of Matter. Matter can, or it cannot, work itself into an organic body, plant or animal. These are the crucial facts of the case, and the testimony of all Nature, through all known time, is against Materialism, and its champions are compelled to confess it.

As the essence of Matter is unchangeable, it is but a weak and convenient dodge to say, that though Life and Matter are *now* separated in Nature by an impassable gulf, such was not always the case, nor will it forever continue. Not a fact nor an analogy in Nature can be brought forward in proof of such an assertion. Our argument and demand are now before the Materialist, and both can be met at the same time and in the same way. No words of speculation, nor even the prophecies of the Materialist, will meet the case; as a question of fact, it must have fact for its support.

It as much accords with observation and experience that icebergs, from their summits, should spout flames of fire, or that a circle should also possess the figure of a triangle, as that any kind of Matter should give forth vital phenomena. The chemist can bring together the matter of a grain of wheat, or of bioplasm, and can even build up something which will resemble a "cell," but can he make any of these things live? It is not claimed by Materialists that such a feat was ever accomplished. Prof. Tyndall

assures us, "that after eight months of incessant labor" to prove that Matter could be made to generate Life, "he was forced, by overwhelming evidence, to the conclusion that Life can come only from antecedent Life."

When the Materialist will take us into his laboratory and permit us to see Matter grow into a hair, or a mustard-seed, we will concede vitality to it. Positive Philosophy, or "Modern Science," means simply the "mechanism of atoms." It recognizes no other foundation, uses no other material, enters no other field of labor. Matter—the Matter of the chemist, the only Matter known to us—is the only real it considers, and its forces embrace the sum total of the forces of the universe. This Positive Philosophy takes its stand outside the Organic World; for an organism to be examined must first be subjected to chemical analysis, and then it is an organism no more. An organism, *as such*, is excluded from its method of inquiry, and its futile efforts to produce an organism by virtue of the forces inherent in Matter reveal its insufficiency.

§ 9. *Misgivings of Materialists.*

But Materialists feel that they stand upon narrow ground, and that they are wrestling with problems which transcend immeasurably the limits of their data. Prof. Tyndall, the philosopher of sentiment, proposes the following method of escape from these

difficulties: "Either let us open our eyes freely to the conception of creative acts, or, abandoning them, let us radically change our notions of Matter." Again: "Believing, as I do, in the continuity of Nature, I cannot stop abruptly where the microscope ceases to be of use. Here the vision of the Mind authoritatively supplements the vision of the eye. By an intellectual necessity I cross the boundary of the experimental evidence." That is, on the basis of *the Matter* we know Mr. Tyndall ceases to be a Materialist; he passes, by a poetic flight, beyond the boundaries of all we know or can know of Matter, and in an unknown figment of his fancy postulates the cause of vital phenomena. He knows that a something we call "Conscious Life" exists; the "notion" that it can come from Matter, *as we know it*, "cannot be formed by the Mind;" it must come from some source, therefore let us have a new "definition of Matter"—such a definition as will invest it with Life and consciousness. Is not Mr. Tyndall, except in name, a Vitalist? Intellectually he discerns a something, unknown and unpicturable, which he recognizes as the cause of vital effects; *he* gives it no name, *we* call it Life. No new Matter has been discovered, nor has a discovery been made of a new property in the Matter we have, nor has the least trace of vital force been found in Matter. Matter is supposed to manifest, not conceal, its properties, and the presence of the 000,000.5 part of a grain of sodic compound is easily detected by the

spectroscope; of lithium, the 000,000.16 part of a grain can be detected. If Life is there, why not bring it into action?

§ 10. *Materialism builds only upon Matter.*

Materialism accepts the Matter we know as the basis of its Philosophy, and we are not required to follow any of its erratic advocates into the vacuum or into the unknown realm beyond. To leave the Matter of the chemist, and postulate an argument upon the supposed but unknown ether, or to call for a new and extended definition of Matter as ground for argument, is, if not to surrender, to hoist the white flag and fly to another field. Two theories of Life are before us. Mr. Tyndall's is this: By an "intellectual necessity" he passes beyond all that is known of Matter, and yet postulates Life upon that chimera as one of its properties; on the other side, Vitalists recognize Life as non-material in essence, property, and phenomena. Is it not possible that when Mr. Tyndall passes beyond all that we know of Matter that he enters the realm of Vitality? At times he seems to have such a consciousness. He says: "Was life implicated in the nebulæ—as part, it may be, of a vaster and unfathomable Life?" Evidently in this profound remark he had more than a glimpse of the vital universe for which we plead. But what business have Materialists with unknown Matter, or with the unknown properties of known

Matter? In either case the basal factor in their Logic is an unknown element, and, of course, in their conclusion there is nothing reliable.

Such are the properties of Matter that it is not possible for it to exist and escape the scrutiny of the laboratory, the microscope, and the spectroscope; *especially in quantities sufficient* to give existence to the Organic World. Its affinities give it such a tendency to aggregation that, sooner or later, it must, in masses, become visible. In every organic body we find an agent or a power at work which, in an unmaterial way, rules both Matter and its forces—a power never present in an inorganic body; and we are compelled, by a logical necessity, to conclude that that power is a something not Matter, especially so if we can prove that it is not any kind of known Matter.

§ 11. *Matter yields no sign of Vitality.*

We are not required to carry this discussion into the region of the hypothetical ether, since Materialists deal only with the Matter of the chemist. We may, then, inquire: Is vitality a property of the atoms? and of all the atoms of every kind of Matter? Can an atom lose any one of its properties? If so, it may lose all, and that would imply the destruction of Matter. If not all, which of the elements generate Life as a resultant? Is it possible that Matter can possess, and at the same time persistently conceal, the properties which cause vital phenomena? Can Matter

possess these properties as forces inhering in themselves at one time—say when supposed to be alive—and be divested of them at another time, at death? Are Life and Death a mere shifting of the properties of Matter? View the subject as we may to find Life, we must go beyond all we know or can conceive of Matter, and in so doing we cross the gulf and enter the world of Vitality.

Does it give the logical Mind a severer wrench to accept the hypothesis that Life, Mind, and Spirit exist as substances, than to build upon the chimera of unknown Matter, or to attempt to fly to a new and fanciful definition of Matter, framed as a necessity, to meet a case of distress?

Vainly has Matter been subjected to all the tortures of the laboratory to compel it to reveal the supposed secret of its vitality, but not the least structural connection between Matter and Life, or Thought, has been discovered.

§ 12. *Confessions of Materialists.*

A few Materialists rashly boast that they have carried the day, and that the great debate is ended; but Prof. Tyndall nervously distrusts the ground on which he stands. Wisely he says: “There ought to be a clear distinction made between Science in the state of hypothesis and Science in the state of fact; and inasmuch as it is still in its hypothetical stage, the ban of exclusion ought to fall upon the theory

of Evolution." "Those who hold to the doctrine of Evolution are by no means ignorant of the uncertainty of their data; and they yield to it only a provisional assent. In reply to your question, they will frankly admit their inability to point to any satisfactory experimental proof that life can be developed save from demonstrable antecedent life." "I share Virchow's opinion, that the theory of Evolution, in its complete form, involves the assumption that at some period or other of the earth's history there occurred what would now be called Spontaneous Generation. I agree with him, that the proofs of it are still wanting. I hold, with Virchow, that the failures have been lamentable, that the doctrine is utterly discredited."

Mr. Tyndall's disclaimers, doubts, and concessions accord exactly with our reading of a world of Matter. Materialistic Science has not only not advanced a step, but it has no foothold. We repeat, that by its avowed Materialism, its field of operation is limited to "the mechanism of atoms," and from these it must evolve Life and Mind, or it is self-excluded from the organic and psychological worlds. Tyndall laments that this cannot be done; and says that all such professions are "utterly discredited." "We all confess," he says, "that organic matter is mere matter; and the Materialist has not yet established the right to say more."

When we contemplate the vastness of the universe, the great variety of known material substances created, each an essence peculiar to itself, the exhaust-

less wealth and variety of powers and forces therein displayed, we see no reason why we should stagger at the hypothesis, that underlying Matter, its forces and properties, we meet the faint and feeble outcropping of other orders of substancees which constitute a vast vital universe. The vital and material worlds are connected, because the forces of a few kinds of matter are correlated to the forces of life. The existence of a LIVING God granted, a vital universe is the necessary corollary.

To most minds the word *Substance* suggests the idea of the matter of the chemist, and nothing more. In theology the term is applied to each of the Persons or Distinctions revealed in the Godhead, and the interests of clear thinking and sound philosophy demand that it be freely admitted into the terminology of Psychology and Vitality. We have as good reason for regarding Mind and Life as Being—as Substance—as either Matter or Deity. It may be that the Matter of the chemist—embracing many distinct kinds—includes but a small portion of the substances of the universe. In the realm of Life, Mind, and Spirit, the kinds and orders of Being may, in number and variety, equal their greatness as compared to Matter. In the space between Matter and the humblest order of Life, not only the ether of speculation, but many other substancees, may exist, embraeing eleectricity, and possibly light and gravitation. Whatever is a self-centered source of energy is substance.

CHAPTER II.

THE VARIETY OF VITAL ELEMENTS AS THE BASIS OF ORGANISMS.

"Living beings do exist in a mighty chain from the moss to the man; but that chain, far from founding, is founded in the idea, and is not the result of any mere natural growth of *this into that*. On every ledge of nature, from the lowest to the highest, there is a life that is *its*—a creature to represent it, to reflect it."—J. H. STIRLING.

§ 1. *Life Defined.*

THE term Vitality may be defined as signifying Substance, embracing all the specific kinds of Life, which so co-operate with the forces of certain kinds of Matter, as to work this world-stuff into organic bodies, vegetable and animal.

Mind, being more than a Life though living, is excluded from this definition. Vitality constitutes the unvarying mark of distinction between the inorganic and the organic world. As the abstract and independent existence of vital *force* is unthinkable, and as it *never* proceeds from Matter as its *cause*, we are compelled, by a logical necessity, to postulate for it, as its cause, an antithetic Vital Substance.

Of the essence, nature, form, or content of Vital Substances we can form no intelligent conception; but in this particular we are no more helpless than

when we undertake to comprehend the nature of atoms, or of any kind of being or substance.

The spectroscope teaches us that the moon is a mass of inert or passive Matter. The war of its elements is over, because they have found rest in a state of equilibrium. In the absence of an atmosphere, its cold and rocky bosom is incapable of supporting any kind of life; and not on its craggy heights, nor in the abysmal depths of its craters, can an insect, a plant, or a shell be found. We can imagine that such combinations of the matter of this globe might be effected as would extinguish its associated forms of vitality, absorb or dry up its waters, appropriate its atmosphere, and establish the reign of absolute inertness and death. As it is, we behold the *union of two correlated kingdoms*, the Vital and the Material, and all that is lovely and beautiful and good is the result.

Vitality, as a generic term, embraces all the individual lives which find development in either the animal or vegetable kingdom. Our difficulty in admitting that Life is Substance is purely subjective, and arises from an improper sensuous conception of things. Scientists intellectually discern the existence of a substance they call Ether, filling the inter-stellar spaces, and serving as the agent for the transmission of light and gravitation. The proof of the existence of this substance is wanting; and if it exist, no conception can be formed of its nature or content. It cannot be the Matter we know, since it obeys none

of the laws of Matter. But our reasons for assuming the existence of a peculiar Vital Essence or Substance, as the base and cause of each organic body, are that, Matter being out of the question, in no other way can the phenomena be accounted for. We *must* occupy this ground, or assume that the Vital Force displayed in the universe is without cause. All the phenomena of the animal and vegetable kingdoms indicate that a vital element, as the elemental atom of Matter, is a self-centered unit, a part of a vast vital realm, and that it must forever remain as created or cease to be. Matter cannot create nor multiply itself, much less originate life; hence the theory of Spontaneous Generation cannot be true. The life of the *Amœbe* is as much beyond its capacity as that of a seraph.

§ 2. *Life a Reality, and not a Force.*

The conceptional idea of Vitality which pervades this treatise is, that it includes innumerable substantive units—parts of an immeasurably vast universe, and that these are so varied in essence or kind that they constitute the vegetable and animal kingdoms, filling earth, air, and water with living things. Any hypothesis less definite and substantive than this leaves us at the mercy of the logic of Materialists. If Vitalists cannot hold this ground, the whole field must be surrendered. It is nonsense to call Life a force without identifying its antithetic cause. Life,

in itself, is either a something having forces of its own, or it is a mere affection of Matter. If vital phenomena are the products of organization, then Matter can organize itself, and Life must vanish with the destruction of the organism. But we have positive proof that Life, as a germ, exists *previously* to the beginning of the organic structure ; that it maintains, unchanged, its character *in* the structure, and affords us phenomenal results, as in reproduction, which can spring only from *itself*, the Substantive cause. At the same time we freely admit that, away from consciousness and outside of organic bodies, the vital world is a land of shadows and of darkness itself. But the same admission must be made in regard to the essence, form, and size, and content of the individual atoms of Matter. In organisms the two substances—Matter and Life—are conjoined ; the correlation of their forces maintains the law of continuity, and *each* develops and manifests the wonderful properties of the *other* as well as its own.

The unlimited number and variety of organic structures indicate the existence of an equal number and variety of Vital Substances, graded all the way down from human life to the organic cell. Through and by Consciousness we know our own living Self, all other creatures and living things by their phenomena.

With these preliminary suggestions let us enter the sanctuary of the vital world, and note the work and

the changes which transpire in this department of Nature. The forest oak is but an outward and visible expression of the Life which once, in a latent state, existed in the acorn from which it grew. That giant tree is not simply a *mass* of matter, inasmuch as its substance has been cunningly wrought into structural forms of amazing complexity. The *potency* which gave the tree its peculiar internal texture and outward appearance must have existed in the acorn from which it sprung. Of about the same age and size, and standing by its side, growing out of the same ground, subject to the same influences of climate and seasons, and nourished by the same aliment, stands a chestnut-tree; and yet how widely the two organisms differ from each other! For this difference Reason, of right, demands a sufficient and a patent cause. What was the working agent which made the oak what it is, and rendered it impossible that it should be any thing else? And what was the other agent which made the chestnut to differ from it in fiber, structure, and form, and be what it is? We are without proof, that in either the acorn or chestnut seed a typical miniature tree existed, and that the growth of the tree was but a development of this primal organism; but even if such were the case, what agent differentiated the primal organisms? "Insoluble mystery!" cries Prof. Tyndall; as if our knowledge was rigorously limited to mechanical deductions; as if we could know a flower only by analyzing it, or a man

only by dissecting his body? May not a world of *palpable facts*—facts which Matter and Mechanics cannot account for—teach us something in regard to *their* own origin and nature? To the unbiased mind the truth is as clear and certain as a mathematical axiom, that the Life of the acorn was the cause which gave to the oak its peculiar structure, and that the chestnut-seed possessed a potency of its own of a different kind, which spun and wove in a different way the material atoms and molecules which enter into the composition of the chestnut-tree.

On this subject Nature's vast volume seems to be ever open, and on every page the same lesson is repeated and illustrated; and we can never surrender this argument till it is demonstrated that between apparent and real Nature there is no resemblance, and that on its face there is no truth. Materialists will not claim that the most searching examination of the roots, trunk, branches, buds, blossoms, and seeds of the oak and chestnut will explain either the facts of their existence or the *why* of their differing one from the other. The environments of the trees being alike tend to make the trees alike, and explain nothing in regard to their unlikeness. We now face a series of pregnant facts whose range is as wide as the vegetable and animal kingdoms, and what do they signify? If Nature can speak in tones that man can understand, she commands and compels us to see in an organic body the presence and agency of a

peculiar Vital Substance whose superior potency controls and co-ordinates the forces of the sun, of the atmosphere, of the ground, the rains and the dews, and brings them into harmony with its own demands.

The oak, phenomenally, is an illustration of the nature and properties of the vital germ contained in the acorn. So of the chestnut, and so of all structures which go to make up the organic world. The *matter* of the oak and chestnut when in the ground, or floating in the air, was exactly *alike*, and it experienced no change by being wrought into these organisms; and the only difference which exists between the standing trees and the ground, and between each other, has been effected by their respective vital Substances. A live elephant differs from the ground, and from a canary bird, because its huge coarseness is the necessary expression of its peculiar Life. A hen could as easily create a universe of suns and stars as hatch a chick from the egg of a duck, and for the reason that its vital part, as the controlling factor in the case, is wholly beyond her reach.

These truths lie so completely on the surface of Nature, that even if not self-evident, their inherent validity must command assent; nor can they be obscured even by the pedantic verbiage of Spencer's Evolution theory. If even a savage desires to raise a corn plant he would plant the corn seed, because he knows that this seed, and no other, can produce this kind of grain, and that it can produce nothing else.

Of the complex processes involved in the growth of the plant, he may know nothing; and how much does the scientist know? but of the facts in the case he can have but one opinion. To this extent the savage is, practically, the profound philosopher.

§ 3. *Facts Materialism fails to Explain.*

Our sympathies are excited as we read the following despairing words, uttered by Dr. Tyndall:

“Considered fundamentally, then, it is by the operation of an insoluble mystery that Life on earth is evolved, species differentiated, and Mind unfolded from their prepotent elements, in the inconceivable past.” *

What does Mr. Tyndall mean by “elements?” In many places, and with great emphasis, he teaches that there is but one Substance, and that that Substance is Matter. By “elements,” then, he can mean only the atomic elements of Matter. The idea that Mind has been unfolded from such a source not being proved to be a fact, need not be reckoned a mystery. The ground covered by the word “mystery,” as used by Mr. Tyndall, embraces about all we care to know of this world and of this life.

Why are Life and Mind and differentiated species, on earth, such “insoluble mysteries” to this great philosopher? We answer: He refuses to admit the agency and the operation of vital and mental causes,

* Belfast Address.

as such an admission would crush out of existence the substance and soul of the New Philosophy. The world he speculates upon is wholly Matter ; it has no creator, no thought, no life, no design, no moral qualities, no responsibility—it is nothing more than a clod. It is not to be expected from such a premise that any but the most meager and beggarly conclusions could follow ; and a philosophy of nature which is unable to touch “fundamentally” the organic world, or the human Intelligence, can explain but little that is worth knowing.

The sixty-odd known elements of Matter, in their endless combinations, can teach us nothing of the origin of things, nothing of vital or mental phenomena, and Mr. Tyndall refuses to acknowledge the existence of other instructors ; as a consequence, he finds himself shrouded in mysteries and confounded by them. If his materialistic philosophy required it, he would probably deny that the sun is the cause of light, and then, as a consequence, the illumination of the world would be an “insoluble mystery.” As we cannot see the atmosphere we may deny its existence, and then the floating of clouds above our heads will be an “insoluble mystery!” I see the pistol aimed at a man’s head ; I see the flash of its powder ; I hear a sharp report ; I see that the man, who stood but a few inches from the pistol’s muzzle, falls dead ; on examination I find that some substance—some active, powerful agent—has torn its way through his

brain. A fellow by-stander remarks that the man was killed by the pistol's shot; I deny it, for I can find no bullet in the brain. He replies: "But you see its damaging effects upon the skull bone and on the brain matter." I answer: "I only see the phenomena—the cause I do not see and do not know. With some impatience at my apparent stolidity my friend then energetically inquires: "If not the bullet, what did cause the man's death?" I answer: "It is an 'insoluble mystery.'"

A man in the mood for it, by trying a little, may surround himself with mysteries *ad infinitum*. The organizing effects of vital elements in the structure of the oak, the eagle, the lion, and man, are as marked and as patent to our senses as the disorganizing effects of the supposed deadly bullet in the brain of the man. If we have a right to infer the bullet from its effects --and this is what sworn jurymen do in murder trials—we have as clear a right to infer vital substances from their effects.

I am aware that it may be replied that the bullet was known by itself, separate from its effects, before the pistol was fired, whereas Life is never known only in connection with a material organism; but that fact does not affect the argument, which is based upon the axiom, that every effect must have a cause, and a cause adequate to produce the effect. Prof. Tyndall may find shelter in "mystery" or ignorance, but the clear and independent thinker *must* believe,

either that Matter has for its dowry consciousness, thought, will, and feeling, or that the man proper is a spirit-intelligence, having only a structural kinship with Matter. The first supposition Mr. Tyndall admits is "inconceivable;" the latter, then, is forced upon our acceptance as true. The facts of "Life on earth," "differentiated species" existing, and "Mind unfolded," "insoluble mysteries!" What a confession to be made amid the blazing light of this scientific age! If all these things are mysteries, what *do* we know? In what consists the boasted achievements of science!

Is it not a useless and a wretched tantalizing philosophy which leaves unsolved the origin and relations of every thing on earth which impresses us with its wisdom, grandeur, beauty, and goodness? And yet these philosophers look for applause when, with the pomp of metaphor, learning, and logic, they assure us that in capacity and destiny we are neither more nor less than the ground on which we tread!

§ 4. Different Grades of Life.

A closer inspection of the vital world enables us to distinguish :

1. The simple Vital Principle.
2. A Vital Capacity.
3. A Vital Entity.
4. Different kinds and orders of Life.
5. Mind, a living substance, yet it is more than a

Life, for it is conscious; it thinks, wills, and feels, and must receive a special and separate consideration.

In the vegetable kingdom the simple vital *principle* is met with in the pollen and pistil of the plant, and in the animal kingdom, in the *ova* and *spermatozoa* of the sexes. These are the fertilizers and the fertilized, and the product is a vital unit.

The one sexual vital principle is correlated to the other in the same species and order of being, and an endless reproduction, with but slight variations from the original, may be the result. In these substances we meet a something which is not a property of Matter; it cannot be produced artificially, and its nature and existence are among the profoundest secrets of nature. It is the point—nature's inner “sanctuary”—the holy of holies—where the vital and material first come into active contact resulting in development.

Bioplasm and millions of the lowest forms of existence must be classed as vital organisms, but in which a complete vital unit has not and never can be individualized. The bioplasm scattered throughout our body is vitalized Matter, but these living specks cannot be developed into a man nor into any thing else. Their vital principle has no correlate in some other vital principle, and their mode of multiplication is by self-division. Evolution cannot lift these forms of existence into a higher life, for the reason that

there is nothing in them to be evolved. Their nature and powers are fully developed in their low estate.

As instances of the development of vital Entities, from the union of antecedent vital agencies, we may refer to the clearly defined specimens of the vegetable and animal kingdoms which propagate their kind by generation.

A vital capacity is subject to any one of many forms of development, dependent upon the character of its co-operant and environments. The extreme limit to which this variation can be carried is the production of a hybrid, or something imperfect or monstrous. As it is the Life which, fundamentally, constitutes the Thing or Being, its entity must be sought for in the vital part, not in the organism, for that is but as a passing shadow. A hybrid is not a unit, nor a complete any thing in nature. A mule is an organism, a living thing, but it does not possess a complete life of any kind. That which gives character to species—a perfect Life of some kind—is wanting, and hence the mule, as a species or order of being, cannot be propagated. Reproduction is impossible, as there is no Life Entity to be transmitted or propagated.* Mr. Spencer says: † "Something seems to be gained by restricting the application of the title individual to organisms, which, being in

* "There is no certain evidence of offspring ever having been produced by a male and female mule."—HUXLEY.

† *Biology*, p. 205.

all respects fully developed, possess the power of producing their kind, after the ordinary sexual method, and denying this title to those incomplete organisms which have not this power.” I quote the above from Mr. Spencer with satisfaction, for in this connection he concedes the great truth that it is the “manifestation of Life” which “individualizes.”

Mongrels are not, therefore, to be regarded as individuals of any kind or order; they are not pure parts of Nature, but perversions of it; they are crudities, without character, and incapable of rectification; essentially deficient, abhorred of Nature, and cast off with the stern decree that their existence shall not be continued. An outrage has been perpetrated upon the vital world, and from its revenges there is no appeal or escape.

A new substance, whether material or vital, cannot be produced or originated either artificially or by any of the processes of Nature. In the vital world the Life which God has created can be indefinitely multiplied, and within certain limits its forces modified; but the origination of a new substance or Life as the basis of a new species, as the pyramidal myth of Mr. Darwin teaches, is the monster abortion of the “New Philosophy.”

When correlated vital principles have united and become individualized in an organism as a Life, further modification is impossible, except as its development may be affected by its environments. An

acorn from a tropical forest, planted in a cold, barren soil, will experience a stunted growth, yet it will develop an oak, if any thing. A loss of life would be the loss of its being. The vital essence of the acorn produced will not be changed by the effects which the environments may have upon the growth of the tree.

§ 5. *The Permanency of Vital Elements.*

An apparent modification of species may be produced by a change of climate and other agencies, such as scarcity or abundance of food, and marked varieties will be the result; but an instance was never known when one kind of Life became another kind, either gradually or abruptly. Stability in elements and variety in combinations, and not a steadily advancing evolution—one thing ceasing to be, and another coming into existence—have ever characterized the operations of Nature. No one element, whether material, vital, abstract, or scientific, was ever changed into another. The universe that is, is fundamentally the universe that was. The persistent unchangeableness of elemental substances and principles makes it impossible that this ever-changing world should return to chaos; and none but the Creator can take from Substance the essence he gave it, or change its forces.

I wish to repeat, that one kind of Life can never become another life of another kind. If this is so (and we defy proof to the contrary), then the key-stone of the arch of the Darwinian Philosophy

falls, and Mr. Spencer's vaunted theory of Evolution goes down with it. We are as destitute of proof that one kind of life was ever evolved from a different kind, as that iron was ever derived from gold, or gold from iron, or that oxygen ever became copper or copper oxygen. Matter is indestructible, so is every essence, and the idea of changing any one simple substance into another implies both the creation and the annihilation of substance.

We know that we are dealing with verities, and that the ceaseless changes which have agitated the matter of the globe during the past ages do not register an instance of the radical changes which the Evolution theory supposes to be constantly taking place. Prof. B. P. Bowne says: * "Without the law of chemical equivalence and proportion, Nature would be an irredeemable chaos. With it, through all the myriad changes which force is constantly working, the same chemical compounds remain. If they are resolved into their elements they return to the original combination, instead of forming new and strange compounds."

Prof. Bowne quotes from Faraday as follows: "There are different elements with the most manifold powers and the most opposed tendencies. Some are so lazy and inert, that a superficial observer would take them for nothing in the grand resultant of powers; and others, on the contrary, possess such vio-

* "Review of Spencer," p. 225.

lent properties that they seem to threaten the stability of the universe. But upon a deeper examination of the same, and a consideration of the rôle they play, one finds that they agree with one another in a great scheme of harmonic adaptation. The power of no single element could be changed without at once destroying the harmonious balance, and plunging the world into ruin."

If the stability of the fundamental elements of Matter, even the least active and least numerous, are necessary to the continuance of the physical world, how much more important is it that the permanence of law and order should reign in the vital world? The will of the Creator that the universe He made should continue, may be seen in the fact that the mixing of different species, creating thereby a new species, he has rendered an impossibility. Persistent stability of vital units, subject to modified degrees and forms of development, is the universal order of Nature.

The animals of the far-off Geological ages did not, with the change of environments, take on new forms, by "natural selection" or "the survival of the fittest," but they perished outright and others appeared in their places. The Geologic record does not contain a hint that the horse—Huxley and Büchner to the contrary notwithstanding—the ox, the dog, other animals, and man, were ever, in their vital essence or organism, radically different from what they now are. Living things may degenerate till they go out of

existenee, but they never degenerate into other kinds of being. Possibly an orange-tree, in time, might be made to endure the rigors of a northern winter, but, if so, it would remain an orange still; if it perished, it would perish an orange. In the far South the apple-tree is of no value as a fruit tree; it realizes but a spindling, reed-like growth; still, in every leaf and fiber it is an apple-tree, and neither throngh its seeds nor otherwise does it show any tendeney to become another species of tree.

The Fuegians, found in the eaves among the rocks and in the snows of their inhospitable island, are among the most degraded of human beings. Probably the fortunes of war, long ago compelled them to flee to that desolate land as a place of refuge from relentless enemies. We have evidence that their degradation has not been so long continued that it has become fixed and permanent, and that under favorable circumstances a reaction at once takes place. It is not so with the natives of Australia nor with the Ameriean Indians; they seem to be far along on the down-hill grade to utter extinction, except as their blood becomes mixed with other races. But whether rising or falling, humanity gives forth no sign of transformation into any thing else. If the Fuegians become extinet, the last one will die as a man.

If man came up from a monkey, or through a monkey line of aneestors, is it not probable that in his extreme degradation he would retreat back along

the same channel, and, at a certain stage of deterioration, manifest in his conduct monkey characteristics? What would not Darwin have given for such a fact to confirm his theory! But the truth is, that though he may become as savage and beastly as the orang-outang, and nearly as ignorant, he never exhibits the slightest trace of kinship with that animal more than with any other. In the process of degeneration he is as likely to fall into the line of character possessed by the dog, or wolf, or squirrel, as that of any division of the Simian family. But he does not deviate from his proper humanity in any direction, and if he perishes because of deterioration he perishes as man.

The Troglodytes, or Cave-Dwellers of France and England, have, probably, because of extremely unfavorable environments, long since ceased to exist; but the last one that perished was as much a man—as fully human—as any man living to-day. They were probably the scattered fragments of a powerful people, perhaps of noble ancestry, whom the fortunes of war had driven to distant homes, or to hiding-places for safety. It is a law, that as a means of prosperity each member of a community should enjoy the common national blessings; and the isolation of a family or a tribe from the body politic is sure to result in deterioration, if not in utter extinction. Thus man may be exalted, or he may be degraded, or he may die; but such is the changeless nature of his vital essence that he can be nothing but man.

A trained monkey is all the more a monkey for being trained. Man-apes, so called, by the association of years with human beings, receiving in the meantime much care and attention, have learned many things, and have really advanced in the scale of intelligence, but not a cord or spring of humanity has ever thus been touched in their nature. The greater the elevation of the monkey the further his deviation from humanity ; and in all his imitations of man's acts nothing is so conspicuous in the monkey as the monkey method of doing things. The monkey develops along one line, the man along another ; and the different lines are never so near together, nor so much alike, as at the beginning. Could we detect a trace of the human in the trained monkey, or a trace of the monkey in the degraded man, there would be some ground for inferring a remote kinship between them. The analogy which exists between their physical structures is of secondary importance, if of any, inasmuch as the individuality of these and all other creatures is found only in their Vital nature.

This great and overshadowing fact Mr. Darwin fails to consider; hence the deductions he makes from his vast collection of facts are vitiated by the absence of this, their primal factor. As if Matter, which never betrays the least tendency to work itself into an organic body, caused the difference between the horse and the elephant, the atoms choosing to arrange themselves in a specific form in the one organism

rather than in another form in the other organism! Since the initiating and controlling power of the organism is indisputably in the Life, to which the forces of matter are subject, the philosophy which limits its deductions to atoms and mechanical force is essentially deficient in its basal facts, and its conclusions are worthless. There is something more sublime in the germ of the acorn—a fact and an idea of a higher order—than in the brightest star that shines. Its vital power overcomes the law of attraction, and lifts the oak's huge trunk, weighing some tons, up among the clouds, and so firmly spins its atoms into threads and fibers that it resists the storms of a thousand years.

So persistent are vital elements that the existing plants and animals are now substantially what they were thousands of years ago, and there can be no doubt that thousands of years hence they will be about what they now are, or cease to exist. Some species have served their period, become useless, and passed away; but that fact only proves that the destruction of worthless species, not the evolving of them into something else, or of something else out of them, or the formation of new species by the "survival of the fittest," is the order of Nature. The sudden and universal destruction of the mastodon, soon after the appearance of man, apparently illustrates the facts above stated.*

* The Rev. Prof. Sedgwick says: "The fossils demonstrate the time to be long, though we cannot say how long. Every thing indicates a

§ 6. *Mr. Darwin's Theism.*

Mr. Darwin saves himself from the charge of Atheism by quoting approvingly the language of a celebrated divine, who "had gradually learned to see that it was just as noble a conception of the Deity to believe he created a few original forms capable of self-development into other and modified forms, as to believe he required a fresh act of creation to supply the voids caused by the action of his law, and that the living forms of to-day are but variations of the originals."

Mr. Darwin was supremely lucky in adopting the above quotation as his own, as it filled an immense gap which, otherwise, would have yawned between his philosophy and the Christian world. As a tub thrown to the whale, it has had its intended effect, and redeemed his philosophy from Atheism, and almost made it Orthodox. Though this great naturalist is accepted by the Atheists of Germany and Britain as very high authority, we are not anxious to part company with him, and we will cling to him as a very long and very slow progression—one creation flourishing and performing its part, and gradually dying off as if it had performed its part, and another actual creation of new beings, not derived as progeny from the former, gradually taking its place," etc.

The Duke of Argyle says: "History, as Geology has revealed it, has been a history of successive creations and of successive destructions, old forms of Life perishing and new forms appearing; so that the whole face of Nature has been many times renewed."—*Primeval Man*, p. 113.

Theist since he ever adhered to the above quotation, and we think all the more of him because Tyndall's effort to induce him to back down was a failure.

But if what we have said of the vital elements of nature, as the builders of organic bodies, corresponds with the facts of observation, then his "natural selection" theory of the "origin of species" must be confined to the variations that take place within wide but specific limits. His theory of the "origin of species" must be ruled outside the pale of fact and sound philosophy, and for the reason that it wholly ignores the sole cause of the existence of any organic body; also, it overlooks the fundamental and only reason why one organism differs radically from another.

Probably no man living is better qualified to judge of the merits of Mr. Darwin's philosophy than Prof. Huxley. Such are his mental aptitudes, his great ability, his thorough knowledge of the subject, and his strong bias in Darwin's favor, that his judgment formally expressed on this subject is of great value. The case now stands not as strong as it did when his "Origin of Species" was given to the world, as no gaps have been closed up, no missing links supplied; but rather, new gaps have been opened, and the whole superstructure badly shaken since then, as Darwin himself admits. Mr. Huxley says: "After much consideration, and with assuredly no bias against Mr. Darwin's views, it is our clear conviction that, as the evidence stands, it is not absolutely proven that a

group of animals, having all the characters exhibited by species in Nature, has ever been originated by selection, whether artificial or natural.”*

One step, and only one, in the production of a new species can be taken ; the process is then arrested, for which but one cause can be given—an individual Life-principle is wanting in the hybrid, and there is nothing to be propagated. A new vital species, as well as a new material element, can be produced only by the Word of an Infinite Power.

Had Mr. Darwin, in generalizing upon his vast accumulation of facts, been content to build up a system of forms and variations, his success would have been complete and unquestioned. Huxley says again : “ Groups having the morphological character of species, distinct and permanent races in fact, have been so produced” (by selection breeding) “ over and over again ; but there is no positive evidence at present that any group of animals has, by variation and selection breeding, given rise to another group which was, even in the least degree, infertile in the first.

But are vital phenomena of such a character that they prove, beyond a peradventure, that Life controls the structure of the organism ? Of this we must judge, each for himself, in full view of all the facts in the case. On any other ground it is impossible to account for the fact that the same kind of Life-force is attended invariably with the same results. We have

* “Lay Sermons,” English edition, p. 294.

no evidence that Matter exerts any influence in deciding what the character of the organism shall be. Food is indifferent to the kind of animals that consume it.

§ 7. *The profound Secret of Life.*

Of the essence of either Life or Matter we know nothing. A veil has been thrown over these innermost secrets of Nature, and we are permitted to enter only its outer courts. We are not authorized to assume that an unknown essence is common to all Matter, which is not manifest in its properties, and assert that it causes vital phenomena; for we might as well say that such essence is a separate, though accompanying, vital substance. Before this controversy ends Materialists will be driven from the field, or compelled to assume that a latent vital force is common to all Matter, as attraction is, and that this Life-quality manifests its phenomena only in a certain conjunction of circumstances. Had Tyndall this idea in view when he exclaimed, "Let us radically change our notions of Matter?" The Matter of the pollen and the pistil, of the ova and the *spermatozoa*, is very ordinary Matter, and it may exist in proper proportions and yet be destitute of the vital principle or capacity. This principle, then, is not inherent in either the atoms or the mass of matter when artificially collected.

At present we know nothing of Life, except as its nature is revealed in its phenomena, nor any thing of

Matter aside from its properties as revealed to us. We subject both to the tests of observation and experiment, and they tell us all we can know of their secrets. Vitality exhibits in our presence its phenomena, and from these visible displays of its powers, infinite in number, we must judge of its hidden self. Nothing outside of these limits can be put into this argument.

Vital phenomena are as uniform in character, and as clearly defined, and of a far higher order than material phenomena. A clod, a stone, a crystal, are a great way below the rose, the bird, the man.

Grain has been recovered from the sarcophagi in which the embalmed dead of Egypt had been entombed some three or four thousand years, and its vitality was at once suggested. Has the vital principle survived the ages? No one supposed that chemistry or microscopy could answer the question. The seeds were planted in the ground, and thus subjected to the appropriate test of their vitality. The appearance of vital phenomena demonstrated the presence of the vital element. The interesting fact was established that vital elements may remain dormant for ages, ready at any moment to improve a suitable occasion for developing their powers.

Every thing that grows has its stages of development. Through how many periods a fully developed seed of any kind has passed it is impossible for us to know, but there may have been a wide gap between

its germinal form and the full maturity of the seed. We are willing to admit that long ages have passed away since the earth began to teem with life; also, that man's history is comparatively of modern date. As the hypothesis of spontaneous generation is rejected by scientists, including those who are the most anxious that it should be true, we need not refer to it here except to characterize it as an absurd hypothesis. Its basal idea is, that something comes from something else unlike itself—that every thing that lives may have had no antecedent life, that is, may date back to a time when there was no life. It is evolution without involution, deduction without induction, and effect without a cause.

§ 8. *A Created Vital World.*

The idea of separate creations at different dates, those dates in some instances ages apart, seems to give a shock to the reason of Darwin, Spencer, and others whom they have taught so to regard it. Well, then is the hypothesis equally shocking to reason, that in the beginning, or at the time when, as is conceded, some four or five living forms were created by the Supreme Being, that the land and water and air were impregnated with infinitesimally small vitalized germs in the lower stages of existence, and that each has had to wait its appointed time when earth's changes would bring about a proper medium for its development? May not the inorganic globe be a sar-

cophagus, stored with Life-elements, each one waiting its appointed hour to come forth? The Word which gave existence to four or five life-forms could as well at the same time have made the number millions. The vital germ of a kernel of corn, at a low stage of its existence, may have lain in the womb of Nature for ages before it found a visible expression in an organic structure. The centers cannot be found from which vegetables and animals have spread over the globe, and always and every-where, so far as we know, they have been attendants upon a suitable soil and climate. To explain this fact, so as to bring it into harmony with his hypothesis of diffusions from a few centers, Darwin lays out all his great strength; but his mighty eloquence must not be allowed to pass for the real order of Nature. The means for the diffusion of seeds which he assigns afford not an adequate explanation of the fact. It seems more reasonable to adopt the hypothesis that, in the acknowledged act of creation, the Almighty enriched all parts of the globe with the same vital elements.

As we cannot close our eyes to the fact that differentiated vital organisms, animal and vegetable, exist in great variety and vast numbers, the irresistible deduction must be made that this is primarily a vital world, composed of distinct and different vital elements, and that these organisms are but an expression of their nature and power. As God is a living being, why should he not have created a vital universe, reflecting

his own image? "He that created the ear, shall he not hear?" The faith which embraces God as a vital existence can, without further effort, embrace a vital universe. If there is a personal God who is Spirit, and not Matter, and if that Being has structure, content, and attributes, every other living existence, according to its grade and capacity, may possess these properties.

We can as fully believe in the vitality of a flower or of a bird as our own. If this universe is not all Matter—if even a God exist—we are compelled by an "intellectual necessity," as we look upon the organic world, to believe that it, as created, was made to swarm with innumerable kinds and forms of Life.

Matter was made, not for itself, but to serve as stock in hand for the structure of organic bodies. Matter is a world by itself, Vitality is another world by itself. In Vital phenomena, by the use of Matter, we see the Vital world break through and invade the material. Each serves to reveal the highest qualities of the other.

CHAPTER III.

VITAL PHENOMENA CONTRASTED WITH THE FORCES OF MATTER.

“Physical conditions do not lead to the final explanation of all we feel and know.”—PROF. TYNDALL.

§ 1. Matter and its Forces Unchangeable.

ACCORDING to the definition of the atom, given in chapter first, all kinds of Matter, through all possible unions and combinations, whether in passing from one inorganic mass to another, or from the mass to an organism, must ever remain the same unchanging essence or substance; consequently, the inherent properties of Matter must ever abide in it. The forces of different elements, by mixture and combination, may be neutralized, intensified, and modified in ten thousand ways, yet in essence the atoms are in no way implicated. Each atom of every kind of Matter is to-day exactly what it was millions of years ago, when whirling in space as fire-mist. Iron may be cold or hot, in a magnetic state or otherwise; it may be pure or mixed with other substances; it may form a horseshoe or a portion of our blood, but in every condition it is always iron.

Every new relation of any atom brings upon itself and upon the mass of which it forms a part new in-

fluences, and develops other forces. Oxygen and hydrogen, when united in the compound water, apparently lose all their individual properties and form a new substance, and the forces of the two elements seem to have annihilated each other. In the oil of vitriol not a trace of oxygen or sulphur or hydrogen, *per se*, can be detected, yet nothing but these elements are in that substance. To prove that the elemental atoms, *per se*, are the same unchangeable substances, we have only to break up the compounds into their constituent elements. Thus iron, oxygen, nitrogen, gold, carbon, and all other elemental atoms, may have experienced millions of different combinations, extending through all the ages of the past, yet not an atom has been changed or lost, nor a new force originated. The original atom can at any time be recalled from any combination unchanged, because unchangeable.

The revelations which the spectroscope has made within the past few years of the constituent elements of other worlds—planets, stars, and suns—have emphasized the importance of the atomic conception of Matter. In the heavens, by the light reflected from atoms, stars are revealed to our vision, so inconceivably distant from each other that no form of Matter can ever have passed from the one to the other; and yet the light that proclaims the existence of these stars, tells us that they are composed of the same kinds of atoms as form this globe. Atoms of

carbon, oxygen, and hydrogen perform their vibrations on earth, in planets, and in stars in the same time.

If, then, in the history of the material universe no atoms are created—if such as we have are unchangeable and indestructible—they must exist beyond the reach of all theories of evolution. What process of nature could have brought into being, or manufactured from pre-existing matter, the unnumbered atoms of oxygen, each one inconceivably small, and yet in volume constituting half the globe, and perhaps half the matter of all the worlds that exist, and made them exactly alike? The same question might be asked in regard to all the other elements, and in each case the answer must be: Such process must lie outside of all the known operations of existing nature.

These considerations shut us up to the conviction that there must have been a creation, and that these things are so because the Creator thus ordained. Indestructibility was given to substance—to all being—in that it is impossible for a Something to make itself nothing. Catastrophes have occurred in the heavens; sun storms are the fiercest the eye can witness; stars have suddenly increased in brilliancy, then waned, and finally disappeared; comets have been broken into fragments, and the parts dissipated in space; and should it be that in the course of ages, in some supreme catastrophe, stars, suns, planets, and comets be made to mingle in a common mass, con-

centrating all the forces of nature in a single storm, and should the fury of the elements continue without any abatement for ages, not the slightest change would take place in the number, essence, nature, measure, or weight of the atoms. They constitute the basal timbers of the universe, and what God has created is not self-destructive ; but out of the ruins of one structure or system another may arise of a higher order and greater perfection. Charcoal substance, crystallized, becomes the diamond ; common clay, crystallized, gives us the ruby, and similar changes may await the recombination of all the Matter of the universe.

The properties, forces, and laws of the atoms are a true, and the only possible, expression of the nature of their essence. Each atom is a self-centered cause, and its forces proclaim incessantly the laws given to it by the Infinite One. As these laws arise from the essence of the atoms, they are as unchangeable and unrepealable as the substance is indestructible. Each atom is an incarnation of a force and a law which are ever expressions of the Divine Will.

§ 2. Organic and Inorganic Matter the same.

Organic Matter is any kind of Matter which has been wrought into a vital structure, animal or vegetable. Crystal and mechanical structures are not organisms. An organism is a vital unit.

Organic Matter is often referred to, even by scien-

tists, with an emphasis, as, "carefully prepared" or "richly endowed" matter, which indicates that they regard it as extraordinary matter. George H. Lewes avoids this mistake. He says: "All the fundamental properties of Matter are recognizable in organized Matter. The elementary substances and forces familiar to the physicist and chemist are the materials of the biologist, nor has there been found a single organic substance, however special, that is not reducible to inorganic elements. . . . If we can decompose the organic into the inorganic this shows that the elements of the one are the elements of the other.*

Chemically considered, then, there is no difference between the matter of the human body and an equal amount by weight of earth taken from a swamp or a corn-field. The carbon, hydrogen, oxygen, nitrogen, iron, and sulphur of the two masses are exactly alike. What, then, constitutes the essential difference between a Demosthenes delivering an oration, who weighs, say, two hundred pounds, and an equal quantity by weight of common earth? We answer: A Life-substance has wrought *the Matter of the one mass into a human organism, with which a Mind is associated*, and through this organism it manifests its own properties, forces, and phenomena. Take the Life from this body and its Matter will quickly return to its normal state, or enter other organisms. The presence of the Life and Mind in the one mass and not in

* "Physical Basis of Mind," p. 12.

the other constitutes the essential difference between the orator and the common clod. Material properties and forces only abide in the one, Life pervades the other, and to its peculiar and supreme sway the material forces of the mass are subordinated.

Matter carries into organisms only the forces and properties it possessed outside of them. A purely new basal force cannot be created. The forces of material nature are persistent because their base is unchangeable. A force, therefore, not found in inorganic Matter, but associated with organic Matter, must have a Non-material cause. The substance and forces of water had fundamentally a previous existence in the elements oxygen and hydrogen. The forces of different kinds of Matter may, by union or mixture, modify each other for the moment; but a new force cannot be created nor an existing one destroyed. All the material forces of nature spring necessarily from the elemental atoms; any force which cannot be referred to that basis is foreign to Matter. In each atom inheres certain specific forces which all the elements of the universe of a different kind cannot produce.

No kind of Matter is admitted to an organism, to form a part of it, whose forces are not correlated to its Life. Uncorrelated Matter destroys the Life or is cast off by it.

It is a grave mistake, often committed, to ascribe to Matter properties and forces in one condition, and

invest the same Matter—Matter, *per se*, with a new set of properties in another condition.

§ 3. *Matter cannot Exert Vital Force.*

Science has at its command laboratories in abundance; many of them are richly endowed with means for developing, modifying, and testing the forces of Matter; for half a century men of genius have used these facilities with great diligence for the purpose of extorting from Matter some form of vital energy; the scientists of different nations have enlisted their energies in this work; but as yet they have not succeeded in constructing even the “cell;” their highest achievement being the formation of indigo, and a few other like compounds.

A complete idea of change or variation in the being, or essence of an atom of any kind whatever, cannot be formed by the Mind. In this respect let us see what thought can do with gold. We cannot think of this element as changing in essence unless we can conceive what it will surely become. The idea of annihilation—a something real becoming nothing—is unthinkable. Before one atom can become another its essence must cease to exist as created, which supposition implies the destruction of Matter; then out of nothing the new substance is to arise, which implies the creation of Matter. The active and inflexible laws of thought do not allow the Mind to fall into such absurdities. Mind must abide by the fixity of

the atoms as they are till it can grasp the new substances into which they, *ex hypotheca*, are to be changed. In making such an attempt it finds itself trying to soar in a vacuum.

The stability of the essence of the atoms is a basal fact in this discussion. If it varies with every new combination of elements, we cannot conjecture what forces in Matter may yet be developed, and vitality may be among them. If compelled to yield this point it will be impossible for Vitalists to deny, with absolute certainty, vitality to Matter. But every known fact of nature, as well as the laws of clear thinking, sustain the theory of the unchangeableness of the essence and forces of the atoms of Matter.

A combination of atoms develops force, but does not create it.

When, therefore, we think of Matter let us think of it simply as Matter; the accident of its being in a lump, a liquid, a gas, in or out of an organism, is of no consequence.

§ 4. *Matter the Product of Infinite Wisdom.*

Matter, as such, however, is not to be despised. In its mysterious essence and its manifested properties and forces it is truly beautiful and wonderful. It gives us suns, worlds, and systems of worlds, and the infinite varieties of inorganic nature. It yields us gold, silver, copper, zinc, the air we breathe, the water we drink, the ground, the light, the heat, and

the changing seasons. It is because of the inherent capacities of Matter that vapors rise, that winds perform their circuits, that rivers flow, and oceans roll. The elemental atoms are so richly endowed with force, and so intermixed, that their action and reaction, affinities and repulsions, have made it possible for a living organic world to be nourished upon the bosom of mother earth.

But here the world of Matter must stop ; it can raise itself no higher ; it can go no farther. Matter exhausts its power in the wars and affinities of the atoms.

All subsists by elemental strife.—POPE.

Material nature builds up rocks and dissolves them again to form the ground ; vapor, water, and icebergs are the same substance under different conditions. The sun wars with the winds, and the winds war with the land and seas ; continents sink and become ocean-beds, and ocean-beds become continents, and thus the forceful and active Matter of the earth becomes qualified to nourish and support a vegetable world.

§ 5. *The Life of an Organism.*

A speck of ammonia united with a molecule of carbonic acid—that is, the elements oxygen, carbon, nitrogen, and hydrogen—constitute mostly the Matter of the wonderful organism called Bioplasm. These material elements, if brought together chemically or

mechanically, cannot, however, be made to form an organic structure. They can only be made to form a speck of mere jelly. The jelly will, however, be identical in kind and percentage of elements as the Matter of the real Bioplasm. The forces, materially considered, are the same in both substances, and yet between the two *plasma* there is all the difference which subsists between life and death—the organic and inorganic worlds.

The query, then, naturally arises: Is it not possible for us to lift the mass of matter into the world of Life? So we apply to it various degrees of warmth, and watch the result. We vainly look for a change. We then apply to it electric forces to see if by that means the jelly cannot be made to live or give some sign of life. Still no change. We continue our efforts till all the incantations of chemistry, mechanics, and of every other branch of science are exhausted, only to conclude at last, that it is not possible for us to impart life to mere matter. If in the real bioplastic cell there is nothing but Matter, containing merely chemical and mechanical forces, the chemist might and ought to work out with chemical and mechanical helps such living cells. The fact that he cannot do it is proof that the real cell contains a Somewhat that is not Matter.

The Matter of this plasma forms by far the larger part of the globe, and the formed living plasma exists in great abundance in both plants and animals, and it

is both the working agent and the matter used in the structure of organic bodies. Nature does not work behind a veil nor in secret, but openly and before our eyes, and challenges us, if we think we can, to imitate her operations. As often as her challenge has been accepted by the scientist he has been overwhelmed with defeat, and driven from the field a humbled man.

As the elements of the plasmatic organism can afford no reason for its existence, and as they refuse to yield to the incantations of the Materialist, from whence comes this marvelous Bioplasm? We now stand in the presence of the lower outer margin of the vital world, and it is important that we know of it all that can be known. On one side of the line, which separates the material from the vital world, we see that Matter never comes from Matter, nor comes at all; and on the other side, that Life is constantly coming, but always from antecedent Life. From whence, then, came the first Bioplasm? In the presence of this question all science that is not false bows its head and is silent. But this is just what we need to know. With this field left as the "dark continent," but little remains that we care to explore.

For all that Science can do to help the longing mind of man, we are doomed to gaze upon the vast and complex organic world as an "insoluble mystery." What is Life, and what, in its highest form,

is its destiny? are questions which touch the supreme interests of each one of us. The thoughtful mind must have at this point something it can rest upon as truth, or it will feel that wisdom is a mockery. A gap left here cuts the center out of science, and leaves us nothing but a ragged rim. This shadowy coast can be cleared only by the admission of the existence of God, the Life-giver; but this admission materialists are reluctant to make, hence here their reasonings properly end, and we are left in midnight darkness.

§ 6. *The Mystery of Existence.*

The facts of nature carry us a certain distance, and we can go no farther, but from the point where we are compelled to stop we cannot avoid seeing an Infinity beyond. We speak of infinite space and infinite time, or eternity, but those words surpass human comprehension, yet no man can escape from the consideration of them as facts. Is, then, the Infinity, which is irresistibly manifest to the thought of every man, empty, without significance, and without content? The boundaries of our horizon are limited by our lame and limping faculties of thought and intuition; but what we do know points out to us the existence of a thousand things which baffle our deepest penetration. We know that oxygen and hydrogen unite and give us water, and that no other substances in the universe can do it; but the ques-

tion, What is the peculiar nature or essence of the constituents of water that they can unite, and that, in union, they take on the form of water, no mortal can answer. The being and essence of God is not more inscrutable than those of an atom. It is folly for us to suppose that man can judge of the whole book of nature from the little he can read of it. Mighty minds, for many generations, have made supreme efforts to break the seals of material nature and reveal its secrets, but whatever path they have chosen to take has led them to a point from which all beyond was infinity. We can refer to no part of nature and say concerning it, "We understand it all." We do not believe the Materialist lives who can look upon a living, crawling, squirming bit of protoplasm and say, feeling that he tells the whole truth : "That is nothing but a compound of oxygen, hydrogen, nitrogen, and carbon." He stands upon the borders of infinity, and he feels and silently confesses to himself that there is Something there he cannot see, and that his Science cannot explain.

The Matter of this globe had existed for ages and ages before it became the theater of Life, and we may say that the reign of vitality has but just commenced. There was a moment when it could be said, No speck of bioplasm has ever on earth existed ; and a next moment when it could have been answered back, Yes, but it has come ! It is here ! And there is a sense in which the Infinite is thus at

present carrying forward the plan of creation. There was first the creation and the incomprehensibly long dominion of Matter, in which we see nothing but a display of its properties and energies ; in process of time much of this Matter became fixed and powerless in the azoic rocks ; in some instances the forces of nature reached a condition of eqnilibrium and neutralized each other ; and finally, as the result of unnumbered modifications, the forces of Matter had undergone in the formation of compounds, it became correlated to the forces of Life.

Were it possible to evolve Life from Matter now, we should have reason to infer that it was at some remote period spontaneously introduced ; but there is not a fact to sustain the hypotheses of spontaneous generation, or that the skill of man is capable of so manipulating the forces of Matter as to cause them to generate even the lowest form of Life.

What more likely and logical than that a *living* God should, as his first work, give existence to a *vital* universe, and that the vital and material worlds should be correlated to each other ? The facts of observation prove that the forces of Life and the forces of Matter are so related that the Matter is spun into fibers, wrought into form, and built up into organic bodies. The late Prof. Clerk Maxwell thus strikingly contrasts atoms and vital organisms :

“ It is well known that living beings may be grouped into a certain number of species, defined

with more or less precision, and that it is difficult or impossible to find a series of individuals forming the links of a continuous chain between one species and another. In the case of living beings, however, the generation of individuals is always going on, each individual differing more or less from its parent. Each individual during its whole life-time is undergoing modification, and it either survives and propagates its species or dies early, according as it is more or less adapted to the circumstances of its environment. Hence, it has been found possible to frame a theory of the distribution of organisms into species by means of generation, variation, and discriminative destruction. But a theory of evolution of this kind cannot be applied to the case of molecules, for the individual molecules neither are born nor die; they have neither parents nor offspring, and so far from being modified by their environment, we find that two molecules of the same kind—say of hydrogen—have the same properties, though one has been compounded with carbon and buried in the earth as coal for untold ages, while the other has been occluded in the iron of a meteorite, and, after unknown wanderings in the heavens, has at last fallen into the hands of some terrestrial chemist. We are, then, forced to look beyond them to some common cause to explain why this singular relation of equality exists. We have reached the utmost limit of our thinking faculties when we have admitted that, because Matter

cannot be eternal and self-existent, it must have been created."

The fact that it is the nature of Life, of every kind so far as we know, to clothe itself in a material organism, suited to its nature and wants, is proof that such was the Creator's design ; and that to that end the forces of the one substance were correlated to the forces of the other. It is under the operation of this law that the human body is developed, and it holds good, without an exception, throughout the vegetable and animal kingdoms. The vital essence of the first man, by multiplication, has become the Life of the human race. There is nothing stable in organisms ; they are but transient phenomena—mere bubbles—afloat on the surface of the infinite ocean of life, and their destruction leaves the ocean as it was before.

And yet it is in the organism alone that the peculiar capacity and power and beauty of both Matter and Life become developed. How astonishing that a Power exists anywhere which can take such ground as we tread on daily, and spin and weave it into the tissues, nerves, vessels, veins, arteries, and bones of the human body ! How little do we see of the capacity of a bed of dirt in the garden till the life of seeds, planted there, has given to it the surpassing beauty and fragrance of nature's wealth of flowers ! The contrast between the matter of the ground and the matter of the rose and lily is the contrast between the forces of Matter and the forces of Life. Nothing but

Life can find and unfold the marvelous endowments of Matter, and the organism serves equally well to reveal the nature and building capacity of Life. The hidden and richest aspects of both kingdoms can be revealed only as the power of the one is developed by the other; and thus viewed, the world of Matter is beautiful, the Vital world is beautiful, and their association adds to the beauty of both.

§ 7. Vital Phenomena Contrasted with the Forces of Matter.

Let us now, by contrast and comparison, examine carefully the forces of Matter and Vital phenomena, and draw the line which separates the one realm from the other.

1. A molecule of the mere Matter of Protoplasm may be mechanically brought into contact with other Matter without resistance; but the living substance invariably rejects all kinds of Matter which is not suited to its sustenance and growth.

Carbonic acid is a stable gas, but when brought into contact with vegetable Protoplasm the substance is analyzed, the carbon appropriated, and the oxygen rejected. In this fact the agency and active energy of a new and imperial power appears, which has taken up its abode in a world of Matter. To say that the physical forces of the Protoplasin—oxygen, nitrogen, carbon, and hydrogen—have transformed themselves into Vital forces, is mere assertion, absurd, and inca-

pable of proof. Living plants absorb with great rapidity the sulphate of copper, and it kills them. Often chemical affinities are wholly frustrated by the presence of Vitality. Vital forces thus use, utilize, and control the forces of Matter, or, in some instances, yield to them, and in either case the presence of the vital agent is apparent.

2. Within the mass of Protoplasm may be noticed an internal and rapid circulation of currents in definite and uniform lines, without in any way affecting the organism itself. In inorganic mixtures, of different temperatures, currents may be set in motion as in water and in the atmosphere, caused by the fact that the different temperatures are seeking an equilibrium. When that point is reached, the action in the liquid ceases. The former phenomena is vital, the latter mechanical.

3. Protoplasm has in itself the power of expansion and contraction, and, under proper conditions of self-division, at will. Iron, when heated, expands, and in cooling contracts; wood swells when wet, and shrinks in drying. Between the two classes of phenomena there is no parallel—only a distant resemblance.

4. Protoplasm has power to effect chemical changes, causing a slow and steady heat without the aid of chemical or mechanical forces, and often in spite of them. Matter has no such force.

5. The vital part of organic bodies selects the Matter it can appropriate to the use of the structure, and

so subordinates its forces as to preserve the specific idea or type of the organism.

Thus we see that, on the inner border-line which separates the Vital from the inorganic world, Vital phenomena can be clearly and unmistakably distinguished from the forces of Matter. On the outer rim of the two worlds the distinctions are greater and clearer.

6. As all organisms have their beginning in Protoplasin, or the Bioplastic Cell, a uniformity of composition runs through the structure of living bodies, and in this important particular they differ from the heterogeneous masses of inorganic Matter.

Will Materialists tell us by what force known to Matter does a quaternary cell produce the countless variety of forms which are found in the vegetable and animal kingdoms? There is no difference in the matter of the cell, Mr. Huxley teaches, which in one case grows into a man, in another into an eagle, in another into a fish, and in another into an oak. Put the eagle or the human cell into the water, and it will die; take the fish cell away from the water, and it will die. As the matter of all the cells is alike, is there not something in the fish cell that is not identical with that in the others? And is it not this unknown Something which determines all the diverse results? Can it be possible that the same kind of unchangeable atoms of Matter produce the endless variety of forms that compose the vital world? If so,

can reason detect, in this case, any logical connection between cause and effect?

Our conclusion is, that vital substances of different kinds and orders are the basal cause of the organic world with all its diversities. Does it surpass faith as well as comprehension that the Life of an invisible cell—invisible because so small—possesses a potency adequate to control and weave Matter into the wonderful structure of the human body? If inereligious, let us take a lesson of humble faith from Prof. Tyndall.

While sitting upon the Matterhorn, one of the spurs of the Alps, musing upon the problems of the universe, he could believe that “the laws which then directed his thoughts had existed millions of ages ago in the fire-mist, when the globe was in the condition” of white-hot atoms.

§ 8. *The End for which Matter was Created.*

7. If we examine attentively the highest nature and the steady tendency of the forces of Matter, it will be seen that they have for their specific aim and end (1) the supply and preparation of food for the vegetable part of the organic world; (2) for the animal kingdom.

No nourishment suited to the wants of animal life can be made directly of inorganic Matter. What mother earth is to vegetable life, vegetable organisms are to animal life. One kingdom built upon another

seems to be the order of nature. The lower gives itsclf for the support of the one above it, and evidently was made for that express purpose. Oxygen, the most active and powerful agent in the world of Matter, is incessantly engaged in the preparation of iron, sulphur, hydrogen, phosphorus, potassa, soda, calcium, magnesia, and other elements for this purpose. Much of this matter is used only upon occasion, and is then given back to the inorganic world.

Were not Matter susceptible of being wrought into organic structures, the entire globe would be no more than the cinders of a volcano. An idea of creation, worthy of the name, cannot be derived from the existence of mere Matter. It is when we see Matter wrought into the form of a plant, a flower, a forest, birds, animals, and man by active and energetic Vital agencies, that we are impressed with the wisdom and the supernatural power of the Infinite. We are then in the presence of palpable creations which irresistibly carry us into the region of the incomprehensible. Our highest reason yields to the mastery of a power it can neither measure nor resist. In the Mind's necessary conception of the Infinite, man silently bows before it.

8. In their development, organic bodies, governed by laws peculiarly their own, appear to move in cycles, while inorganic masses are but the sport of accidents, and of the attractions and repulsions of other bodies.

To demonstrate this fact, we plant a kernel of corn in a warm, rich, moist soil, exposed to the light and heat of the vernal sun; the germ, containing the Life part, is warmed into active growth, and in a few days we see the delicate form of the infant stalk above the ground, basking in the sunlight and feeding upon the atmosphere, its career of development fairly begun. The roots, at first nourished by the body of the kernel, are now strong enough to draw support from the pabulum the ground supplies. The development rapidly advances, the vital element of the germ diffuses its forces throughout the entire body, controlling and co-ordinating to the processes of growth every particle of the aliment received. We have only to wait a little time and we behold, proudly erect, the full-grown stalk, with its broad wing-like leaves, waving tassel, and pendant silk. The vitality of the stalk now enters upon a process of multiplication by self-division. The silk of the incipient ear, and the shower of dust-like pollen held by the tassel, possess vitalizing principles or susceptibilities, and at the right moment the pollen falls, the silk is fertilized, and in due time the Life that was buried in the ground with the kernel planted, returns with thirty, forty, or a hundred others with it. A cycle without a break has been made. The identical Life which was planted with the first seed returns, increased, perhaps, a hundred-fold. The inorganic part of the kernel perished in the beginning, and served as food for

the infant plant, but at no time did the Life change in essence or cease to be. The Life made the cycle without a break. The vital changes were diffusion, division, union of correlated vital principles, and the return of the same vital elements, each individual clothed with a new dress. The cycle being complete, we are at our starting-point, ready to make another round. And what is still more remarkable to contemplate, the same Life we know has made thousands of such cycles before.

In these facts we have proof that a real Life-substance is a compound of Vital elements. In all conceptions, whether in the vegetable or animal world, the union of two correlated elements is necessary to the production of a perfect individual Life, whether that of a human body, or of a beast, a bird, a fish, or a flower. A single vital principle is not a Life, as oxygen is not water. A complete vital entity is a compound of eo-ordinated vital principles.

§ 9. *Mind not the Life of the Body.*

9. A proper insight into the facts and processes of nature will lead us to make a very sharp and broad distinction between Life and Mind. Life, as an entity and as a compound of vital elements, may cease to be, because susceptible of disruption. Mind, being a simple substance, is incapable of division, hence its annihilation is inconceivable. All compounds in the material world may be destroyed by resolving them

into their constituent atoms, but an atom is indestructible because a primal essence. The destructibility of Life is no proof that Mind can be destroyed.

It is clear that Mind has but little to do with the construction of the organism, for the body of the child at birth is as perfect as its stage of development will permit, and yet it has never felt the action or influence of a self-possessed Mind. It brings into the world a capacity—a mental germ—which is yet to experience development, but in no sense is this inactive and undeveloped Mind the Life of the Body. The basis of the organism is no more mental in the case of human beings than in plants and animals.

Nothing analogous to the living cycle in the structure of bodies can be found in a world of mere Matter. Water may become vapor, or snow, or ice, and then again water, and these are among the highest feats that Matter can perform. But these changes differ from Vital phenomena in this essential particular: In water there is no self-directing power; it is wholly subject to the law of affinity and of forces brought to bear upon it from without. In all organisms there is a Life within which so controls and co-ordinates the forces of Matter as to weave the atoms and molecules into organic structures.

Matter manifests *its* forces in the formation of stones, the ground, the air, the crystal, colloids, and in the interaction of one body upon another.

§ 10. *The Law of Generation Limited to the Vital World.*

10. Vital forces are sharply distinguished from the forces of Matter, in that they are vastly and endlessly reproductive.

Matter can make no addition to itself. The Matter brought into being in the beginning still exists without any increase or diminution. All the forces of Nature combined are incapable of producing an atom of iron, gold, or of any other kind of Matter. One of the marvels of the Vital world is its various methods of multiplication. The atom is complete, and can be nothing but the solitary atom; in the Vital world the one in time may become many millions. Ages of change neither create nor destroy a particle of Matter.

Such is the smallness of our globe and the poorness of its accommodations, that it does not support more than one vital germ out of thousands which make a struggle for existence upon it. Only a small fraction of the pollen and silk of a stalk of corn results in the formation of a kernel. Were none of the vital forces furnished our globe lost by miscarriage and otherwise, our supply long ago would have been sufficient to stock all the planets of the solar system.

Matter, when made, became fixed in nature, and not a trace of the process of its creation do we find anywhere. The Matter-creating force can exist only

in the fathomless depths of Infinity. Apparently that period of cosmical history was past long cycles ago. On the other hand, vital principles clothe themselves with organisms, and, by multiplication, form countless myriads of living structures. The base of material bodies is fixed unity ; of organisms, the ceaseless multiplying of vital essences. Life spins and weaves its many-colored robes from the world of matter, and swarms forth in myriad forms of beauty. All the matter of the globe, in process of time, possibly may be wrought into organic bodies.

11. The resistance which organic bodies present to the forces of Matter constitutes one of their distinguishing characteristics.

Oxygen, comprising two fifths of the air, eight ninths of water, three fourths of animal bodies, and one half the crust of the earth, is the most active, ubiquitous, subtile, powerful, and destructive agent in nature. With one exception, it readily unites with other elements, and changes and modifies the forces of whatever it touches. An author, of vivid imagination, thus describes the ravages of oxygen : "It is all around us like a lurking lion, constantly on the watch for a chance to spring upon and devour something. We gather a basket of luscious peaches and put them out of the way of the children, but we cannot outreach the slyest pursuer of all—the oxygen, and soon we shall find the fruit covered with the prints of invisible teeth. Black spots appear, and we say they

are decaying; it is only the oxygen feasting upon them, and in a month it will devour them, skin and all. To prevent this we put our fruit in glass cans, heat them to expel the oxygen, seal them up tightly, and they are safe from this chemical plunderer.

“We open the damper of the stove and the air rushes in. The oxygen immediately attacks the fuel, each pair of atoms catches up an atom of carbon and flies off into the air as carbonic acid. An animal dies, the oxygen is alert, and the instant his victim expires he begins to remove that which will be an offense to all sensitive nostrils. Through the air he flies, passing through dwellings, villages, and cities, scattering broadcast the nitrogenous and other parts of the animal. We cut a finger, and the moment vitality leaves the quivering flesh it is seized upon by the ever-present oxygen, whose richest repast is composed of nerves; its presence in the rotten tooth is torture to the victim; it seizes upon iron, and tugs away at its hard surface till it is covered with a coat of rust; it has entered my ink-stand, and, uniting with the iron of the fluid, has so deepened the color and increased its consistency, that I must soon reduce it; and always and every-where it is the same pilfering, destructive, and necessary agent.”

There is no minute cell, no dark dungeon, no unoccupied space whither the destroyer does not come. The world of Matter has not a property nor a force which it may not modify or change. It turns iron

into rust, nitrogen into air, hydrogen into water, carbon—a diamond—into an acid, sulphur into vitriol, silieon into quartz, and thus it holds a sort of imperial sway in the elemental atomie kingdom. In some eases a single atom of oxygen is sufficient to master two, three, four, or a half-dozen atoms of other substaneees; but in other cases it has to multiply largely its own forees to master a single atom of another kind.

§ 11. *The Conservative Power of Life.*

The presence of Life is, however, a full proteetion to all organisms against the ravages of oxygen. It unites freely with the iron of our blood, but, because of the presence of Life, has no power to change it into rust. In both plants and animals it comes into contact with sulphur and hydrogen, but the presence of Life will not allow the formation of sulphuric acid or the oil of vitriol. Oxygen finds silieon in all organisms, but has no power to change it into quartz by union with it. In the world of Matter oxygen is a destroyer, but it destroys that the Vital world may be supplied with nutritious material. It was made to be the humble servant of the higher powers of Life. Pure carbon is never found except as a solid, but millions of tons of this substance are daily disintegrated by the chisel of oxygen, and the atoms taken in its arms are carried every-where and fed to the vegetable world. It is mostly through oxygen that

the Vital world holds its imperial sway over a world of Matter, and out of atoms and molecules constructs organic bodies.

12. Inorganic bodies, in the undisturbed exercise of their forces, never increase in size, except by external accessions of Matter; whereas in the growth of Vital bodies a constant action is going on from the center to the surface and extremities.

At the mouth of the Mississippi River a deposit of earth, more than one hundred feet deep, and covering an area of some thirty thousand square miles, has been made by the action of the river upon the alluvial soil through which it runs. Etna and Vesuvius have been enlarged by external accessions of lava till they are properly classed as mountains. The old style dipped candle is formed in the same manner.

A class of scientists require that we should make no distinction between the deposit of gravel, sediment, or lava and the growth of a tree or of a man. When shamed by the folly of such philosophy, the crystal is brought forward as a sample of real growth in the absence of a vital agent. Huxley and Spencer are the champions of this idea of growth; but Lewes, a high authority of the same school, dissents, saying:

While one part of a crystal is atomically and morphologically identical with every other, and is the whole crystal 'writ small,' one part of an organism is unlike another, and no part is like the whole. Hence the dependence of one organ and one tissue upon

another, and each on all."* In the light of these facts a crystal can never be classed as an organism, nor can its formation be held as analogous to vital growth. If an atom of oxygen or any other substance could envelop itself in carbon, then take on iron, then zinc, then nitrogen, or other substances, and yet maintain not only its own identity but diffuse its forces throughout the mass, co-ordinating all the forces of the other atoms, so as to realize a certain type of formation, such structure might be called the oxygen type, or some other appropriate type. But all such suppositions lie outside of the facts of material nature, and far distant from them.

The study of embryology makes us familiar with the true idea of vital growth. A dot in the substance of an egg, so small that only the microscope can discover it, marks the beginning of an organic structure, and from this point, as a center, a circulation is set up, which incessantly enlarges its circumference. At this center resides all authority and power in the organism, and here the nourishment is prepared which is to be used for the growth of the body. From this center the circulation is propelled to the extremities. Nothing analogous to such vital growth is ever found in connection with the accumulations of inorganic Matter.

13. Finally, through all the changes the Matter of

*"Physical Basis of Mind."

an organism may undergo, the vital substance remains the self-same essence.

A process of waste and repair is constantly going forward in the human body, and in all other organic structures, which may be denominated a low form of combustion. A man weighing one hundred and fifty pounds has about sixty-four pounds of muscle, and these, with ordinary labor, are all consumed in about eighty days. The throbbing heart works day and night, and a new heart becomes necessary every forty days. Our bodies are like a slow flame, ceaselessly passing away, and by its vital agency ceaselessly fed and renewed. This destruction cannot be arrested; hence re-creation by the use of new material is necessary to the preservation of the organism.

In the course of a long life man has been connected with many tons of the most active and energetic kinds of Matter; and yet, such is the persistence of the imperial Life within him, that its essence has not been touched. The Mind has been the inhabitant of some twelve or fifteen different bodies in the course of a long life, and has maintained its identity amid the wear and waste of the physical structures. From the pedestal of ninety years he looks back to his childhood and feels that he is the same being who, as a boy, chased the butterflies in his father's garden. About this vital being, as a lamp-wick spun of a celestial substance, immense quantities of combustible matter have been consumed, but the wick

remains. Can this wick, ever burning but not wasting, be of the same substance as the stuff consumed? If so, why should the one substance pass away in a never-ceasing flow and the other remain? The facts indicate the presence of an element which is not only self-centered and independent, but which, in some measure, extends its control over associated Matter.

We delight in the study of matter, and would not detract one iota from any just eulogy which may be pronounced upon its properties and forces; but earnestly we protest whenever these forces are confounded with the very different and opposite facts which control the vital world.

It thus appears that vital phenomena and material forces are never, even in their most delicate aspects, so near alike that it is difficult to distinguish the one from the other. It was to be expected that both worlds would somewhat fade out and become less distinct as they approach a border line which separates them and is common to both. On the higher and more distant limits of the two realms their peculiar characteristics become more distinct. We cannot mistake Mont Blanc for an eagle perched upon it, nor the Matterhorn for Dr. Tyndall sitting upon its crags meditating upon the problems of the universe.

Our knowledge and its limits in regard to both Matter and Life, and their mutual relations, may be summed up as follows:

(1.) Of the origin of Matter and Life, Science teaches us nothing.

(2.) Of the essence of either Matter or Life we can form no conception ; but the *facts* of their existence as substances, and their properties and forces, are clearly revealed in their phenomena.

(3.) The atomic theory of Matter, and the individuality of Life, may be accepted as true.

(4.) Matter and Life have each properties and forces which are exclusively their own, and specially correlated to each other.

(5.) Material Atoms and Vital Elements are known by their respective phenomena, the phenomena of Matter being the aggregation of atoms, their properties and forces ; the phenomena of Life being the organization of Matter/into living structures and the resulting peculiar activities.

(6.) Each kind of Matter and Life has a nature or essence, which is exclusively its own, and no one substance can be transmuted into another.

(7.) The phenomena of Material Aggregations prove the existence of atoms, and the phenomena of the Organization of the Atoms into complicated living structures, prove the reality of Vital Elements.

(8.) Material Atoms invariably act in their own material ways, which are not in any one particular the ways of Vitality ; and Vital Elements act in their own peculiar ways, which are not in any respect the ways of Matter.

(9.) Every organism, whether animal or vegetable, is a demonstration of the great truth that the Vital and Material worlds are correlated to each other.

(10.) Matter and Life form two kingdoms, separate and distinct in essence, but associated in the organism, and analogous in their mysteries and manifestations.

(11.) The Essence of Life is as fully in the field of observation in the organic world as the Essence of Matter in the inorganic. The argument which proves the reality of Matter proves also the reality of Life.

(12.) Matter cannot come from Matter, nor does new Matter come at all. Life comes from antecedent life, and the one may become millions of the same order.

CHAPTER IV.

THE MIND, AS THE MAN, IDENTIFIED IN THE ORGANISM.

“Man is not an Organism; he is an Intelligence served by organs.”
—SIR WILLIAM HAMILTON.

“Man became a living soul.”—BIBLE.

§ 1. *The Significance of Persistent Terms.*

AS the crowning work of creation, man stands alone, and refuses classification. His association with Matter is not necessarily a degradation, nor does the Body serve as a veil of covering to the Mind, but rather it is used as a means of self-manifestation.

Man’s place in nature is fixed, not arbitrarily, but by his surpassing endowments of mental and moral power.

All that has been said in previous chapters of Matter applies to his physical structure, and need not be repeated. His body is neither worse nor better than the ground on which he treads.

Our ideas of man’s greatness cluster about the words Mind, Spirit, Soul, Life, Thought, Reason, Will, Consciousness, Intelligence, and the ever-enduring monuments of thought which the Genius of the departed has left behind them. The special signification of these terms, and of cognate words in other languages, has sprung from the consciousness

and observation of mankind, and they have never been used except in metaphoric and poetic expressions, only as the symbols of a thinking substance, real in itself, and vital in essence.

Even among the very lowest tribes of people on earth, where we find a name for the sun, moon, stars, rain, storms, etc., in this small class of conspicuous and palpable objects the Mind of man is included; and if our conceptions of this self-conscious subject, as ourself, are the figments of the imagination, then the voice of humanity on any subject, prolonged through ages of history, may be a lie and a cheat. In the mental nature of every man a consciousness exists whose voice has the truthfulness and authority of a divine oracle, and its every utterance signifies that man is a Spirit Intelligence.

These terms, Mind and Spirit, stubbornly refuse to coalesce with a physical terminology, and materialists have vainly made a supreme effort to strike them out of the vocabulary of Science. Prof. Huxley gravely tells us that he has no more use for the term vitality, when speaking of men and living creatures, than for the word "horology," when discoursing upon the time-marking clock. Prof. Bain vainly subjects our language to torture in a protracted attempt to wring from it some form of expression which will set forth vital phenomena in terms of Matter. Spence, Lewes, De Blainville, Heckel, and many others have labored assiduously to accomplish the same feat; but even if,

as the sun would continue to shine if denied a name, so Mind, a substance equally real, will ever assert its existence regardless of all attempts to rob it of its title made by Materialists. Great practical facts and truths incarnate themselves in language, and even if modern Materialists could render obsolete the terms of vitality and spirit, the truths they represent would continue to well up in human consciousness, and find expression in others equally appropriate.

It is a pregnant fact that all nations and peoples, from the highest to the lowest, have recognized, in some form, the fact of spiritual existences, to which man himself, in his mental nature, stood related. These facts are but the spontaneous and unconscious expression of the nature of man.

§ 2. Mind fully in the field of Observation.

But, say Materialists, "Show us the human soul as a real substantive entity and it sufficeth us; bring Life and Mind fully into the field of observation; make them stand side by side on the same plane of observation with Matter, that we may distinguish between them, and we will be content."

Very well. Let us then first see how fully Matter, *per se*, is subject to the inspection of our senses. As there are at least sixty-five different kinds of Matter, each kind endowed with a nature or essence of its own, to see Matter as it is, we must see it in its primary condition as an entity, and not in the heterogeneous

mass. We can form a true conception of the molecule only as we examine it in its individuality. But what Materialist ever brought any one of the sixty-five elements into the field of observation? An aggregation of 400,000 atoms would not form a mass of sufficient magnitude to be seen, even with the microscope. The fact is, Matter, as the primal unit, cannot be recognized by any of our sense organs, even when aided by the most delicate and powerful instrument now at our command. Man's place in the universe seems to be about midway between vast worlds and systems of worlds above him, and worlds equally numerous and inconceivably small below him; and it is probable that the revelations of the microscope will surpass in variety and wonder the universe that can be brought within the range of the telescope.

The entity of Matter is not to be found in the compound, nor in the mixture, nor in the organic body, for these have but little more stability than a shifting cloud, but in the changeless atomic unit. Permanent endurance does not pertain to any form of aggregated Matter, consequently an entity of Matter is not, and cannot be, an object of observation.

Matter as an entity, Matter in its primal state of atoms, and Matter as an essence, or as many separate essences, is not so much, by far, in the field of observation as Life and Mind—a fact that cannot be too deeply impressed upon the mind. By the aggregation

of atoms and the development of the forces and properties of compounds thus formed, we may learn something of the phenomena of Matter, and of the existence of Substance; but beyond these limits knowledge cannot be made to pass. We answer the Materialist, and say positively, Show us Matter as an entity, in its primal atomic condition, that we may examine its essence, and we will engage to exhibit to you Life and Mind as substances, that you may examine them in like manner. The fact is, we know nothing of either, except the bare facts of their existence and their phenomena. I pick up a stone or a lump of earth. I know by its phenomena I have in hand a substance, but the kinds of Matter which enter into this mass, and the percentage of each, I can only conjecture. When I have reduced the mass to its primal atomic condition, the atoms are not within the reach of my senses. They are removed as much beyond any field of observation as the dusty cometary fuel that feeds the fires of the sun. Life is a vital essence; Mind is a conscious substance of a higher order, and in sensation and thought these essences, in their individuality, are as fully in the field of observation as any Substance can be. Can as much be said of Matter?

A mass of pure iron is a phenomenal resultant, consequent upon the aggregation of many atoms of the same kind. It is not an entity, but an aggregation of an unknown number of entities, and of the

number, essence, form, and shape of the entities it gives us no conception. I can form no idea of the influence which the union or contact of the atoms has upon their forces or properties. Of ultimate substances, then, whether of Matter, Life, or Mind, we know nothing beyond the fact of their existence.

§ 3. *The Reality of Substance.*

But does not this picture of realities raise a doubt as to the existence of any ultimate substance? Can the Mind receive as real that of which no definite conception can be formed in consciousness? Is an indefinite consciousness of a partial conception of a Real to be regarded as a legitimate action of the intellect? Let us proceed cautiously.

Every possible line of thought which is made up of phenomena logically points to, and is based upon, positive existences as their active and energetic cause. In our confessed ignorance of the nature of Substance we make a clear declaration of its existence. When thinking of the phenomenon we necessarily think of the antithetic noumenon. It is rigorously impossible for us to think of an appearance when nothing appears and appears to nothing. Our conception of the thing that appears may be very indefinite, but we know to an absolute certainty that it is something real.

Though it may be impossible to form a conception of the size, form, or essence of any kind of Matter,

per se, or of Life or Mind, *per se*, yet in spite of sneers and all other efforts to the contrary, Atoms, Life, and Spirit, as substances, MUST forever remain with us as positive and ineradicable forms of thought. And especially in our meditations upon vital and intellectual phenomena Mind acquires a momentum which inevitably carries us deep down to causal substance, and these, though we can give them no form nor discern their essence, must persist in us as permanent parts of the world's realities. By their very nature our conception of them is rendered indefinite, yet real, and, because indefinite, unassailable and indestructible.

Matter, then, is not so fully in the field of observation as one at first thought might suppose. Materialists should not press their demand to see or touch Life or Mind as substances till they can put on exhibition an entity of Matter.

§ 4. The Correlates of our Sense-organs.

But let us look at this problem from the stand-point of the correlation of substances and our sense-organs. Is there nothing real in the universe except what is correlated to some one of these organs? Is Man of sufficient breadth to be considered the counterpart of all things else? The idea that he is the measure of the universe causes it, in our imagination, to shrink into very narrow and mean proportions. Wide as is the range his senses take, it is probable that the larger

part of the universe exists beyond their reach, even when aided by the telescope and microscope.

It is evident from the practical use we make of the senses, that each one was intended to establish and adjust our relation to a specific department of the inmaterial world. The eye is correlated to the light, and embraces a wide range of objects, but it has its limits; the sense of hearing is confined to the work of noting the vibrations of the air; by the sense of taste we simply mark a distinction in flavors; by the sense of smell we discern the presence of odors; and by the sense of touch we extend in various ways still further the range of our knowledge. All the senses are but variations of the sense of touch, and in their action one material object comes into contact with another. These senses were intended to be specially useful to a Spirit Intelligence, as a transient inhabitant of earth; and each one is limited to a specific feature of Matter. It is probable, if not certain, that other and different senses would find in nature new departments of activity and force as their counterpart. We cannot see the Intelligence we call Man, for the reason that spirit does not reflect light upon the retina of the eye. For a similar reason we cannot see a sound, an odor, or a flavor; hence they do not come within the range of vision. We cannot taste this self, for there comes from spirit to the organ of taste no flavor; we cannot hear it, for thought gives no motion to the air that it may beat

upon the tympanum of the ear; we cannot feel it, for it makes no tactful impression upon the nerves of the body. Thus we see that the idea is absurd that a physical sense should be correlated to any thing except Matter. If by the senses we could apprehend Mind, that fact would demonstrate that Mind is Matter.

At some stage of human development, in the far away future, consciousness may become a spiritual and vital sense. Eliphaz, in his argument with Job, gives this item of experience:

“ Now a thing was by stealth brought to me,
And mine ear received a little thereof.
In thoughts from the visions of the night,
When deep sleep falleth upon men,
Fear and trembling met me,
And shook the multitude of my bones.
A spirit then passed before my face;
The hair of my flesh stood up;
It stood still—
I could not discern the form thereof.
An image was before my face;
I heard a still voice saying:
‘ Shall mortal man be more just
Than God?’ ”

Sir William Hamilton says: “ However astonishing, it is now proved, beyond all rational doubt, that in certain abnormal states of the nervous organism, perceptions are possible through other than the ordinary channels of the senses.” *

* “ Reid’s Philosophy,” p. 246, foot-note.

§ 5. *The Authority of Consciousness.*

I do not see that entity I call “myself,” but I am conscious that I exist, and that, in a way, is to know and to see self, and knowledge of any thing, more absolutely certain, man cannot possess. I know that it is the ego that thinks, wills, and feels, and that in such action the senses take no part. The Being which thus acts I know to be myself, the Mind-Man. The loss of the senses, one by one, would simply embarrass access to the external world, but would leave the ego untouched. The ego, which I know to be myself, I recognize in kind in every other man; *and the fact that Life and Mind wholly escape the observation of our material sense-organs, is no proof that they do not exist.*

Material substances, phenomena, and laws demonstrate the existence of a material world, which, in its primal atomic state, could not have been subject to the observation of such senses as we now have; and vital phenomena, in a thousand ways clearly apparent to sense by the use of Matter, demonstrate the existence of vital and intellectual realms.

The great, if not exclusive, mission of vital substances in this world, is to organize Matter—the raw material—into various organic structures. The kinds of life known as vegetable, ranging from mold and the *algæ* to the sensitive plant and the cedar, constitute an incomprehensibly vast kingdom. This

kingdom serves as the base of the animal kingdom, and the animal as the base of the intellectual realm, and the intellectual as the base of the Spiritual. Every organism, whether animal or vegetable, has a Life that is its, and the life built the structure. As differ, in form and type and texture, the structures, so differ the kinds of life which spun and wove their tissues together. Out of the same kinds of Matter different vital substances produce the vast variety of organisms we behold in field and forest. The Matter of all animal organisms is substantially the same, and the difference of the structures is caused by the radical differences which exist in the vital builders.

Man's body is the most delicate and complicated of known organisms. It is composed of about seventeen kinds of Matter, and these are wrought into many millions of distinct and perfectly adjusted organs. Man is not an animal—he is man. He possesses a vital nature which separates him from the brute creation. Human nature cannot become brutal, for no one substance can be changed into a different substance. Man's body is ordinary Matter, but that is no part of the man.* His Life is not animal, but *sui generis*,

* I accept the deduction of science, that atoms as well as worlds have a constant motion in a marvelously attenuated and inelastic fluid or substance, called ether. As a concomitant fact, atoms are not closely packed together in the mass, but each is afloat in the ethereal fluid, and friction and wear is rendered impossible. May not this mysterious ethereal substance constitute man's essential body, and be a part of the man proper—"the house not made with

and hunian. Mind is a living substance, made to think, and it is not the body-builder. Man proper is a Spirit-Intelligence, for whose use, in its relation to a world of Matter, a human life has supplied a convenient organism, correlated both to Mind and an external world, and, as a bridge, it spans the gulf which intervenes between the physical and intellectual worlds.

In sleep Mind retires to its own sanctum, or is quiescent that the body may recuperate; but in the meantime the life of the body carries on its work as usual.

Life, as the active conservator of the body, makes its power felt in every part, even to the microscopic nerves. In the gradual softening of the brain, even when the cerebrum, as an organism, is utterly destroyed and incapable of further use, the nervous system, not thereby receiving a death-dealing shock, the life of the body may, and often does, continue in operation for some years. The actions of the body indicate that the Mind is wholly powerless, if not absent; but the suspension or loss of mental activity does not seem to affect in any way the life or health of the body. The Vital man continues to eat and drink, and wake and sleep, as usual; and automatically

hands"—not the organism? The loss of life sends the organism down to the grave, but a resurrection has been proclaimed. In the course of a long life-time the carbon, nitrogen, and oxygen, sufficient to form many bodies, come and go, supplying the waste of the body; but it is positively absurd to suppose that such Matter, in quantity, should form the spiritual and glorious body described by St. Paul.

moves about as physical instinct or nervous irritation may incline. In this demolition of the brain-castle we may not be able to trace the consequences upon the Mind, whether it is present or absent, but this we clearly see, that the living body that remains is not the Man or Mind, and it follows that Mind and Body are not dependent upon each other for existence or action. Even when locally in the body, Mind can act only in the realm of ideas. Euclid's Life built his body; his Mind built his geometry. The Life and its work have perished; the Mind and its work are immortal.

The anatomical structure of the body is correlated to its Life; the organic structure, animated by a vital element, is correlated to the Mind.

The body is an index of its Life, but not of the Mind. A Mind keen in its penetrations and enormous in strength, may be associated with a diminutive, sickly, and ungainly body. The body may be a giant and the Mind a dwarf. A brilliant Mind in a splendid body is a fortunate but rare occurrence. The Greeks had but one Apollo, and other nations have felt in this respect the parsimony of nature.

The use Life makes of Matter is analogous to the use Mind makes of Ideas. In the one case, the elemental atoms and molecules are spun into tissues and woven into organic bodies; in the other, thought is linked to thought, and thus woven into science, philosophy, religion, systems of trade, the arts, and

poetry. Mind cannot touch Matter, nor Life an Idea. Mind is closely associated with the Life of the body as focused in the sensorium, and, secondarily, with the body itself. These facts demonstrate that the conscious Mind is a unit of substance, peculiar in essence, specific and limited in power, and that the Life of the body, as quite a different thing, occupies another plan, and performs another work, in the economy of nature.

Where an object is seen, there must be an eye to see it; where there is a sound, there must be an ear; and where a problem is solved, there must be a Thinker that solves it: and each agent in nature has a special mission of its own, and beyond the boundaries set to it, it cannot pass. Oxygen cannot do the work of silicon; the mustard-seed cannot build an oak; and, while Mind can think and will and feel, beyond these limits it cannot go. Only by annihilation can Mind be removed from its own proper realm of ideas, and if we conceive it to be a substance, the idea of its annihilation is unthinkable.

There are feats the Mind cannot perform. It cannot believe that a part is equal to the whole, nor that the figure of a circle coincides with the figure of a square, nor that Matter, such as stones and lumps—and there is none better—inspired our Lord's sermon on the mount, nor that Matter can read and understand it.

The question before us is this: Are mental phe-

nomena so peculiar, so distinct, and so sharply marked, and so unlike all the properties and effects of Matter that man, the party in question, with a full understanding of the whole subject, and guided by the light of his own consciousness, is compelled by the law of necessary beliefs to assume for himself and for his race a non-material, separate, and vital existence? In his higher nature is he not rigorously conscious that he is related to a world of Mind and not Matter? These are the questions with which this age is wrestling, as other ages have done before.

§ 6. *Vicious Method of Study.*

Materialists, hastily followed by many Vitalists, have led the world astray by making the study of Life and Mind a question of physiology—that is, a question of organic Matter. Prof. Bain conceives man to be a piece of organic Matter which, by “fits” and turns, is “two-sided,” one side mental and the other material.

Ask Prof. Huxley if Mind and Life exist as living substances, and as a philosopher he subjects nerves, protoplasts, molecules, and brain Matter to chemical analysis and to microscopic observation, and finding nothing but Matter, he returns a negative answer. He reports that he has examined all those organs which are most closely associated with Life and Mind, and concludes that what we call Life and Mind are not existences, but affections of Matter.

Is the method of inquiry candid or correct which seeks for Life and Mind as if they were Matter?—which seeks the living only among the dead? If chemistry could find in an organism a tangible substance which, without a shade of doubt, was the cause of thought and vital phenomena, whatever was thus found would be Matter, and Materialism would be established. But, as vital substances are not material, the time spent in searching for them in brain-matter, nerves, tissues, blood and bones is labor lost. There may be diamonds, though not found in every heap of rubbish.

Anatomy can deal only with organic results when the vital cause of the structure is absent. Vivisection can proceed but a little way when death ensues, and the dissecting knife can then feel its way only among the nerves and tissues of the dead. The search for Life really commences only after the Life has fled. Should I find a bee-hive well filled with honey and honey-comb, but beeless, and conclude, because I could find no bees, that the honey and wax had gathered themselves together, I should argue as Materialists do. Because they find not a tangible, active soul in a dead body, they conclude that the Matter of the organism built itself, and that the vital world is an illusion.

In the study of Biology and Psychology the scalpel, the spectroscope, the microscope, and the laboratory are of no use whatever; they lead from the truth

rather than to it. To find either vital, mental, or material substances, we must seek for each where it is, and by proper methods. At every step of their inquiry, Materialists, notwithstanding their consummate knowledge of physical science, encounter mysteries which, confessedly, they cannot explain; but if they would be content to study the different departments of nature, each separately, their difficulties would largely disappear. Whoever tries to demonstrate that the figure of a circle corresponds to the figure of a square, has in hand a problem that will give him trouble. To conceive the true idea of either Matter, Life, or Mind, but one of these substances can be permitted to occupy our thoughts at the same time. The truth, in each case, shines forth only in its own light, and it despairs the aid of borrowed rays. Mind is a thinking, self-centered, and self-directing substance, and the attempt to unfold its properties and describe its activities in the terms and by the laws of Matter, throws confusion over the whole subject. Each Real in nature is most clearly seen as it is, when examined in its place and in the office it fills. Man should be content to accept nature as it was created, and not proudly attempt to prove what it should be.

And philosophers study one topic at a time in all other departments of research. A systematic study of organic structures—a study long pursued by many men of genius in many schools—has created the

science of anatomy, and we pursue this study successfully only when, with scalpel and microscope in hand, we prosecute the work of dissection and analysis.

The vital part of all beings and things should also, in idea, be separated from each other and from Matter, and be examined solely as special phenomena, manifested through their respective organic bodies. No one subject should be allowed to come in and obscure another. Should we mix together promiscuously the elements of music, chemistry, mathematics, and grammar, the results would be as clear and as instructive as the teachings of modern biologists and psychologists, who teach us to conceive the idea that Mind and Life and Matter form a unit of substance. Their conception of both Mind and Matter is an ideal chaos, and baffles all attempts at clear thinking. As Monists holding to the existence of but one substance, they should so frame their definitions as to include all material, vital, and mental qualities, forces, and phenomena in one true and logically expressed conception. But such a feat the genius of man cannot perform. But a sharp analysis and a careful classification of the things and facts of both Life and Matter separately will lift these subjects into the light of their real nature.

Man can rely with absolute certainty upon the validity of his consciousness when his personal existence as a self, distinct from surrounding objects, is

in question. The consciousness that finds expression in the words, "I am," is the Self spending the moment in self-communion. Man has the ability of self-inspection, and out of its exercise has grown the science of psychology. Self-consciousness is Self scrutinizing its faculties, their functions, and powers. The Self exhibits to the Self its own being and nature in the attributes of the Mind. The mental essence is, of course, inscrutable, but its properties and powers find their fullest expression in the faculties which are subject to the observation and study of consciousness. Man's consciousness, or selfhood, isolates the ego from the body and from the rest of the universe as fully as if he existed as pure Mind. Solitary and alone, he knows that his ego is not his hands, nor the body as a whole. That Self, as a unit, stands apart and thinks of the body and of the universe ; thinks about them, classifies and analyzes their parts, and at every step it is certain that the objects considered are not parts of its own being. Our ability thus to distinguish between the subjective self and objects known, lies at the base of all science, logic, and philosophy.

In thinking, the mental Self must do its own work; the hand can no more render it help than the pen the hand may hold. The Mind-self knows the body as one of many objects of knowledge; such knowledge the body can reciprocate no more than trees or stones. The perceptive and knowing power is all in the Mind; the objects known may be the Mind's own faculties,

or things separate and distinct from it. In the dissection of a human body the operator knows that every stroke of the scalpel reveals to him the structure of his own body, all human bodies being fashioned after a common type; but the Self is never found in any of the paths made by the knife of the anatomist. Mind and body are so distinct and so unlike that the methods of studying them have nothing in common. The sciences of anatomy and physiology throw not a ray of light upon the essence of Life, the structure of the Mind, or the laws of thought.

All we know of body may be expressed in terms which are applicable to Matter, such as extension and solidity; but such language, if applied to Life or Mind, would be clearly absurd. To designate the Mind we use the terms reason, intellect, judgment, thought, will, and feeling; and these terms applied to Matter—even Matter in the most complex organism—would sound like the irony of a buffoon. Not even our coarsest Materialists have yet ventured to make such an application of them; they are, however, content at present to compel us to infer that such is the doctrine they expect to announce in the future. But the field embraced in the scope of consciousness should be more fully explored. To know ourselves is to know the human race; for the race is a unit of individuals, all cast in the same typical form by the energy of like human vital substances. Consciousness is the valid foundation of all knowledge.

It is not only the Mind's cognition of itself, but of its perceptions, its observations, thoughts, feelings, and purposes. We are further conscious, not only that these thoughts and purposes exist, but that they *are ours*, whose source and origin is the thinking Self. The first and the ceaseless utterance of consciousness is, "I am," "I exist," and thus the Self is, in a way, made visible to an intellectual perception. I know I am, not by reasoning, nor logic, nor inference, nor by any complex mental process, but such knowledge is the direct outcome from the ego, as light radiated from a burning lamp. No event, mental or physical, can be more sharply defined than the act in which consciousness takes cognizance of Self. Such act has not, apparently, the slightest connection with any of the sense-organs, or the physical organism. Neither muscles, blood, bones, brains, tissues, nerves, nor any thing physical, mingles its forces with the pure cognizance the Mind takes of itself. We are not conscious that the brain-mass takes part in this action of the Mind more than the blood or bones; and all that Bain, Huxley, and others have said about the relation which subsists between thought and the action of the molecules of the brain, Dr. Lionel Beale, George H. Lewes, and Prof. Tyndall, being judges, are mere fancies, unsupported by a known fact in physiology.

I can also say, "I feel that I am," and I can think that I feel, and can discriminate between different

kinds of feeling. I am conscious that the thoughts and feelings are mine, not another's, and this conviction is absolutely inclusive and exclusive. The witnesses I have of the reality of my mental existence, I perceive, are two, and either is unerring and ultimate—incapable of being doubted, and too self-evident to admit of proof. Consciousness, like a sentinel, stands by the Mind while it acts, and notes the endless variety of its thoughts, feelings, and purposes. Thought follows thought, one modifies another; one banishes another; a series of thoughts, purposes, and feelings become linked together, and consciousness assures me that all are mine, and that for any action that may follow I am responsible. We are subject to the raptures of love, the bitterness of hate, the burning of desire, the inspiration of hope, the depressions of grief, and the wretchedness of despair; and so decisive is the voice of consciousness, that we know without a shadow of doubt that these states of feeling belong to the Self, and not to another—to Mind, and not to Body.

§ 7. *The Fallacy of the Materialistic Argument.*

In contrast with the above conception of man, Mr. George H. Lewes, in his work entitled "The Physical Basis of Mind," uses the following language as the key-note to his Materialistic Philosophy: "It is enough that Mind is never manifested except in a living organism to make us seek, in an analysis of

organic phenomena, for the material conditions of every mental fact.*

The importance of this sentence depends upon the construction the author subsequently attaches to it. Mr. Lewes does not say that Mind never acts, but that its action is never "manifest" to others, except in a living organism. That may be literally true, and, if so, it is well enough to seek in an "analysis of organic phenomena for the material conditions" of every "manifested mental fact." The stiffness of Mr. Lewes's pedantry laid aside, the case may be stated thus: As man's senses are all correlated to Matter, Mind is to him an invisible and intangible object; it is, therefore, never "manifested, except in a living organism;" and then we must, of course, seek "for the material conditions of every mental fact" in organic phenomena. Thus understood, this language is unobjectionable; but Mr. Lewes really means to teach that "material conditions" produce "every mental fact." He is a Monist, and holds that Matter is the sole substance known to the universe. In a human organism he recognizes only material elements; these he invests with vital properties and forces, and the action of these elements he denominates a manifestation of Mind. In his Preface he says: "The nature of Life deals with the specialty of organic phenomena, as distinguished from the inorganic. It sets forth the physiological principles

* Page 3.

which psychology must incessantly invoke." Still further: "Not only has there been more than one attempt at a Mathematical Psychology, but also attempts to reduce sensibility in its subjective no less than its objective aspect, to molecular movements. Here, also, the facts of quality are translated into the facts of quantity, and all diversities of feeling are interpreted as simply quantitative differences."* Note this language: "Quality translated into quantity;" that is, a thought, a fancy, a feeling, love, etc., estimated by the mass, by weight, by the quart or yard! Vital phenomena are regarded as products of Matter. Molecular movements in the matter of the brain—movements of which nothing is known and whose existence is purely hypothetical—are made the basal factor in this problem. "Organic conditions," not one of which does Mr. Lewes pretend that he understands, form the details of the system. Let us hear, on this point, the honest Prof. Tyndall: "If asked to deduce from the physical interaction of the brain-molecules the least of the phenomena of sensation or thought, we must acknowledge our helplessness." Yet Mr. Lewes would study brain-molecules exclusively while laboring to solve the problems of Life and Mind—that is, study Matter to understand the Mind. By this arbitrary and artificial method of argument the questions of Vitality and Spirit, with all their vast and absorbing interests,

* "Physical Basis of Mind," page 384.

have been pressed into material channels for solution. Biology has been made but another name for physiology and for animal and vegetable chemistry.

Strange as it may seem, Vitalists, with scarcely an exception, have been drawn into this maelstrom of Materialism, and they have emphatically injured the cause they labored to advance. Unconsciously they surrendered when they consented to unite with Materialists, and make the question of Vitality a question of physiology. They have studied a question of Matter, and flaunted in our faces the results as the solution of the problems of Life and Mind. Assuming that only material substances were objects of knowledge, all phenomena have been regarded as having a material origin, and the relation which one organ sustains to another and to the whole body, has been the sole end of all their vast researches. This account of the relation of material organs they call a solution of the great vital and mental problem !

But we hold that Mind is the man proper, and demand for its existence and properties a separate and special investigation. The slightest organic connection between Mind and Matter forming a unit, cannot be tolerated for a moment till the fact is demonstrated. Such task will not be undertaken by Prof. Tyndall. He says: "The mechanical philosopher, as such, will never place a state of consciousness and a group of molecules in the relation of mover and

moved. In passing from the one to the other we meet a blank which the logic of deduction is unable to fill."

We have seen, in chapter third, that the body-builder is its Life, and that body and its Life are correlated to each other. Mind is primarily related to, and associated with, the Life of the body, and through this Life it reaches the organism. From the relation of Mind and Life springs voluntary muscular action. A closer connection between Mind and Matter cannot be traced than that here indicated.

§ 8. *Further False Reasoning.*

As Materialists are required by the mechanics of Matter to translate "mental qualities" into supposed "material quantities," it is not strange that they hold the discussion down among protoplasts, protozoons, the algæ, amæbe, mollusks, rhizopods, fishes and frogs; for apparently the gap between a jelly-fish and a mass of jelly is not very great, and possibly it may be bridged over. But to pass from a clod to a Napoleon at a step, is a hazardous undertaking. Materialists find it a dizzy leap, and, therefore, they make use of but few illustrations taken from the more firmly organized animals, and least of all from man, the head and front of creation. A worm inspires, but the thought of a Mind chills and paralyzes their genius. To ignore the study of Mind and its mighty achievements as much as possible, is a mode of reason-

ing which has in it a suspicious look. Materialists turn away from a strong light, as if it dazzled their eyes, and often for truth they appear to substitute the grossest absurdities. If in our presence they will “translate mental qualities into mathematical quantities,” then chemically analyze the “quantities,” we will believe that at its base their philosophy is not all nonsense.

On mechanical principles Prof. Tyndall can account for the formation of crystals, but that does not authorize him at a single bound to reach the conclusion that a stalk of corn is formed by the action of the same law, or at a second bound, with no force in the field but that which formed a crystal of snow, quartz, or salt, to account for man, and the whole vegetable and animal creations.

Like Mr. Tyndall, we experience changing “moods,” and often our studies of the mysteries of existence plunge us into depressing doubts, and plague us with problems we cannot solve. Having exhausted the strength of our humble powers on the great problem of human Life to no purpose, we go to Dr. Tyndall for help, who, in addition to being a brilliant philosopher, is endowed with poetic insight, and interrogate him as follows: “What am I? and what my endowments? How came I here? and what is my destiny?” He sees that I am in trouble, and his great warm heart shares in my sorrow. A sort of inspiration comes upon him, as if he felt, in all its fullness, the

power of his philosophy, and had perfect confidence that it was adequate to the wants of yearning humanity. He replies: "Sir, you have done well to come to me with your trouble. A philosopher should be a generous benefactor of his race, else his superiority to the vast herd of human kind, together with his science and knowledge, would be of no practical value, and there would be reason to discredit their intrinsic truth.

"The matters you suggest I have pondered for nearly half a century; indeed, I have made them a specialty, and am prepared to give you the required information. There is, sir, in operation among the atoms and molecules of Matter what we may call a crystallogenic law, and, under suitable conditions, it is ceaselessly active in building up structural bodies. The diamond, the ruby, the amethyst, the chalcedony, the agate, the quartz rock, snow-flake, and, often, sugar, alum, and other substances are wrought into mathematically exact and beautiful forms by its operation. In your body, sir, there are about twelve kinds of Matter, and in its formation we witness the highest development of this law. It is marvelous that oxygen, nitrogen, hydrogen, carbon, sulphur, phosphorus, magnesium, potassa, calcinum, chlorine, sodium, iron, and a few other substances should be wrought into the millions of strings and tubes and posts and levers that compose the human body; but we see in this fact, and in the further stupendous fact

that the Matter of this body lives and reasons, the power that is lodged in the law of crystallization. You are now a crystalline structure, but the work in your case was not very substantially done. As the warm sun melts the snow-flake and destroys its mechanism, so we all, under the frosts of a few years of time, do fade as a leaf, and return back to dust again. Still there is hope ; for, in the future, our scattered dust may be wrought into permanent rock, or into the oak, which may last a thousand years. Sir, your questions are fully answered."

Such is the fullness of the consolation I receive from this apostle of the gospel of dirt. "Religious feeling," says Mr. Tyndall, "is as much a verity as any other part of human consciousness ; and against it, on the subjective side, the waves of science beat in vain." And yet the boasted positive philosophy, the deepest and widest in its sweep the geniis of man ever gave to the world, can provide for it neither food, stimulant, nor direction, except what is contained in the forces of Matter. Apart from this dirt all is nonentity, or an "insoluble mystery!"

§ 9. To Know Man, the Mind itself must be Studied.

The truism has been stated that, to be understood, mental and vital facts must be examined in the light of their own properties, forces, and phenomena. The intrusion of any thought of Matter or of its forces, but confuses the Mind and obscures the subject. The

study of a railway track and a train of cars would give but an indefinite idea of an engine; it would rather mislead than properly direct the Mind. We may learn something of the scope of vital forces by the study of organic bodies, providing we regard the organisms as results. We may also learn something of the forces of Mind by the study of what it has done in sculpture, painting, and poetry. The statue of Jupiter was a reflection of the full or best genius of Phydias, and the "Iliad" may be regarded as an incarnation of the soul of Homer. In his dramas may be seen the ideal universe in which the soul of Shakespeare lived, moved, and had its being. "Paradise Lost," as a creation of the genius of Milton, is a transcript of his mental and moral structure. The Pyramid Cheops existed ideally in the mind of some engineer before the hands of slaves began to pile the hewn stones one upon another. Solomon's Temple existed in some architect's brain while yet the stones that were to form it slept undisturbed in the mountain.

The work of hands, hammer, and chisel are groveling compared to the creations and conceptions of genius. At best the organs of the body are but the servants of the Mind. Mind rules the man, and rules the world, either for weal or woe, and forms a part of the intellectual universe. The eternity and unchangeableness of a universe of truth is the counterpart of the Mind, for which it exists.

To know one's self is to know humanity, for a human Life and a human Mind are common to our order of beings. Because of his consummate knowledge of humanity Shakespeare has stood as a delineator of character, without a peer among men, for three hundred years. Whence came his consummate knowledge of human life? Anatomy, physiology, biology, and physics, as sciences, were scarcely known in his day, and had he been master of the materialistic philosophy of modern times, and built his dramas upon that foundation, what would have been their character? Instead of living men and women such as real humanity every-where presents to our view—some visible and some shadowy forms, nevertheless, real—we should have been treated to crystalline organisms of Matter, to “mathematical quantities” of thought and feeling, measured by the cubic inch or foot, or by the pound, yard, or mile.

So far as the real man we know is concerned, this vaunting school of science has added not an iota to our stock of knowledge.

Shakespeare obtained his consummate knowledge of humanity by close observation, and by the study of man as a Mind endowed with intelligence, will, and emotion, in the clear and unerring light of his own consciousness. His own breast was the laboratory in which humanity was dissected and analyzed. His conceptions of man were not befogged by thinking of

him as an “ aspect of Matter,” nor as a substance which by “ fits ” was “ two-sided,” nor as “ the synthesis of an organism,” nor as the mere “ resultant ” of a self-made organism. In his judgment the Mind was the man, and the body “ the mortal coil soon to be shuffled off.” The dramas of Shakespeare could not have been written nor applauded in an atmosphere of Materialism, any more than the fruitage of the tropics could spring into life and flourish amid the ice and snows of the polar seas.

Should the Materialistic philosophy gain the acceptance of mankind, our conceptions of Life, of humanity, and of destiny would be such as to render obsolete the Bible, “ Paradise Lost,” “ Pilgrim’s Progress,” the works of Shakespeare, Dante, Goethe, the “ Iliad,” the “ *Æneid*,” and every other work of genius in existence ; or they would be read as the curious, crazy ravings of maniacs about nonentities.

But of such a result there is no danger. In order to immortality a literature must be a glass in which humanity is truly portrayed. We never cease to be interested in ourselves ; and when we see, objectively, the play of our own thoughts and feelings in philosophy, psychology, poetry, paintings, sculpture, or anywhere else, the characters therein set forth, we recognize and acknowledge them as kindred, friends, or foes. Through them we, in a way, play a part upon the stage of human action. Such a literature is read

from age to age, and never grows old, for it contains the true sympathetic breathings of our common humanity.

These vital elements cannot be infused into a materialistic literature, and without them it must die. The mechanical philosophy of Tyndall and his school is the negative of the humanity portrayed by Shakespeare—a foil of the truthful impression of the die—and for that reason the poet will be read long after these philosophers are all forgotten.

§ 10. *The Sufficiency of our Argument.*

In this chapter we have met Materialism in its stronghold, namely, the uniform connection, so far as our observation extends, which subsists between thinking and organized Matter—such as may demand the display of a visible Thinker without an organization, put on exhibition as one might exhibit a horse, will not deem our argument conclusive. The fault, however, is not in the argument, but the nature of the problem makes the demand itself an absurdity. Undoubted mental and vital effects, made manifest directly to consciousness, or by the use of material organs, is the utmost that the case admits. To the one who will exhibit an entity of Matter we will exhibit the Mind. We have pointed out the proof of the existence of a Something which, in an unmaterial way, acts upon Matter, controlling and co-ordinating its forces; also as existing above and beyond

the forces of Matter, and, to this extent, independent of it; and if these agencies are not Life and Mind, they are something else. What?

Our approach to the Mind has been nearer than can be made to the unit or entity of Matter. The atom is removed from our senses more than two thousand times its diameter; but consciousness directly touches and grasps the Self, and knows it by the only method by which such knowledge is possible. To demand a visible Thinker without an organization, is to assume that the Mind is a mass of Matter, for only such an object can our senses recognize.

To do full justice to the powers of the Mind, our psychologists should articulate and emphasize more fully the nature and validity of intellectual discernments. Fancy and imagination are given us that the Mind may picture the thousand reals of nature which exist outside the range of the senses; and what is commenced in sense the logic of reason should finish.

The atoms of Matter, Life, Mind, Spirit, God, and all substance, *per se*, are matters of intellectual discernment. The eye, in fact, is only a limited help to the Mind in discerning the real and the true in masses of Matter; and yet we allow its limited and imperfect vision to overshadow and belittle and limit the visions of the Mind. Mental phenomena, as presented to consciousness, form a group of realities so peculiar and so utterly non-material in all their

functions, that the nations and ages have perceived in them the Mind-man. If sense is allowed to usurp the throne of Intellect, Materialism is the only empire we can recognize; but with the Mind supreme we apprehend without the aid of the senses the vital and intellectual realms, and with them the universe in its highest forms.

CHAPTER V.

MIND SELF-REVEALED IN ITS FACULTIES AND POWERS.

"By the Mind of man we understand that in him which perceives, thinks, remembers, reasons, wills."—REID.

"It is as rational to affirm there is no body because we have no clear and distinct idea of the Substance of Matter, as to say there is no Spirit because we have no clear and distinct idea of the Substance of a Spirit."—LOCKE.

§ 1. *Mind a self-centered Substance, and the Cause of Mental Phenomena.*

WHATEVER exists as substance or being, possesses attributes and forces which constitute it a self-centered cause; and the supposed existence of being without properties is a mere fancy, and implies nonentity. The properties of substance constitute its only and necessary mode of existence.

By rigorous analysis we propose to subject Mind to this severe test of reality. In its personality we expect to find powers which distinguish it from all other parts of the universe, and constitute it a true individual personal self. We shall make no attempt to touch the essence of its being, yet the fact of its existence will be brought as fully into the field of observation as the nature of the case will permit.

The vital and material kingdoms, by an inexplicable union, constitute the human body, and with this

wonderful structure we find associated, for a short time, the Intelligence known as man. Such is our conception of the Being presented for consideration.

The close relationship which subsists between man's body and the material world is indicated by the fact that it is composed of thirteen of its most energetic and abundant elements.

Vital effects, both vegetable and animal, manifested by and through this body, point with equal clearness to its place and relations as a part of the world of Life. In man is embodied three different kingdoms.

As an Intelligence, capable of thought and moral feeling, Mind affords abundant proof of its kinship, not with Matter, but with a universe of ideas, duties, and responsibilities.

Man, then, is a trinity of living existences related to each other, and associated with a human body. The dividing-line which separates the vegetable and the animal kingdom, and which expresses the most truth with fewest exceptions, is that which regards as vegetable all organisms that can derive nourishment from minerals; while animal organisms, as a rule, are sensitive, and can subsist only upon vegetable or such like organisms. We can obtain in abundance the mineral substances which enter into the composition of bread, meats, and other articles of food; but they cannot, mechanically, be so combined as to support any form of animal life. Nature's order seems to be, that the animate world is dependent upon the vegetable king-

dom for sustenance, and that direct access to the bosom of mother earth is denied it.

Now man, of necessity, in eating, drinking, and breathing, receives freely into his system an abundance of mineral elements, and yet he suffers no injury from them; and this fact can be explained only on the ground that the vegetable life-principle constitutes a part of the human organism, and, as an active agent, imparts to them the vegetable quality. They are thus brought within the reach of the animate life-element, otherwise they would remain in the system as foreign and unassimilated substances.

The whole organic man does not die at once. Long after the body has been laid in the grave the hair, as a vegetable product, continues to grow as when the body was animated by a higher form of Life. The presence of the vegetable life-principle may lie at the base of many other singular phenomena, such as malarial and contagious diseases, the action of the heart and muscles for some minutes after sensations have ceased, and the possible motion of the whole body by the use of galvanic currents. Mysterious as these phenomena are, they are never witnessed except in connection with animate organisms, and must be regarded as in some sense vital.

Man is, therefore, as we see him, not only a *living* being, but he is a combination of vital elements. As a sensitive creature, he stands at the head of the organic world. He is not an animal, but a human

being, and a development of a proper *sui generis* human Life. In many respects the organism of a man may resemble closely that of some animals, but that fact does not authorize us to call him an animal; for the reason that it is the Vital part, not the Matter, of the body—whether of the man, the horse, the ox, or the elephant—which differentiates living creatures from men and from each other; and man is the peculiar being we find him to be, because the human life that animates him differs in essence and power from all other kinds of Life.

The vegetable and animate kingdoms are separated by a gulf which neither can cross, because the one Life cannot become the other. Compare the bee with the flower from which it sips its honey, the ox with the grass on which it feeds, and human Life with any thing below it, and then inquire if it is possible that these orders of being should ever change places. Human life is of the highest order, and it places man at the summit of vital existences. Not only each species and genus of the animal kingdom, but each individual, as patent to observation, is an outward expression of the peculiar properties and powers of an inward vital Substance. As the base and the cause of every organism, whether vegetable or animal, a special vital essence exists, and the differences in the organic structures afford us our best conceptions of the variety of kinds and orders of Life which compose, in the aggregate, the Vital world.

I am aware that Descartes, though a Spiritist, regarded the actions of brutes as automatic, and that in this opinion he is followed by Bishop R. S. Foster; and further, that the scholarly Dr. McCosh denies to both animals and vegetables a vital principle, yet their judgment must be absolutely discarded, for the following reasons: (1.) The peculiar and various phenomena exhibited by vegetables and animals can be accounted for only on the assumption of the existence and agency of vital substances. What Foster and McCosh say about "carefully prepared" and "highly endowed" Matter is mere logomachy, and signifies nothing. All Matter, *per se*, is absolutely perfect and unchangeable. Its endowments are always the same. (2.) If we deny Vitality as a substantive agency to the vegetable and animal kingdoms, it inevitably follows that Matter is capable of Self-organization. When fully persuaded that the Matter of the ground and of the air has gathered itself together, and wrought itself into the structure of a plant, of a worm, or the human brain, for one I shall admit that it can think and will and feel; in short, I shall surrender to Materialism, for there is not left me an inch of ground on which I can stand.

A single step upward from human Life brings us into contact with Mental phenomena, which must emanate directly from that Intelligence which we call Man. I for one am inclined to the opinion that the basal element of the Mind is a high and peculiar

kind of Life, and that self-consciousness and the power to perceive, to think, and reason are its more conspicuous properties. This life and its mental properties are a unit of Substance. Though such a view would not be a heresy, yet we must confess that the mental essence is inscrutable except in its activities.

In this discussion the terms Mind, Soul, and Spirit may be used interchangeably, but as the word MIND invariably designates the Intelligence we call Man, and nothing else, and as the others are used by psychologists in a variety of senses, it is much to be preferred.

We now stand face to face with the decisive question to be settled in each individual consciousness: Is Mind a Spirit Substance? Is it a self-centered unit of being? Will the destruction of its associated organism and its vitality touch or affect the Mind? If Mind is no part of the body, nor of the Life of the body, but a self-centered unit, such fact is of the highest importance, and its phenomena ought to make its truthfulness manifest. It is evident that in plant-life and animal life Mind is absent, and yet these kinds of Life are absolutely perfect. In many cases of idiocy the absence or inactivity of Mind produces no apparent effect upon the organism, or life of the body. Our position is, that mental phenomena, which a fully-developed mind manifests, as well as the absence of such phenomena in cases of idiocy, demonstrates that the normal man is an INTELLIGENCE

which, for the time being, holds intercourse with other Intelligences, and gains access to this material world mostly through a material organism; and, further, that this Mind contains within itself the evidence of its existence as a self-centered unit.

The mental Essence is a substance of intellectual discernment in others, and of personal consciousness in ourselves; and a nearer approach to it is useless to attempt; nor is it necessary, for here we find a solid foundation on which we can stand while we make a survey of its properties and faculties, their functions and powers. As in their own light we know that the sun and stars exist, so rays and gleams and floods of intellectual light demonstrate the existence and agency of the Mind substance.

§ 2. *Mind an Intelligence.*

In the action of Mind there is thought, will, and sensibility, and an examination of each will exhaust the subject, and give us a complete idea of the human Intelligence.

The way is now open for a compact but complete treatise on Psychology, to which might be appended a system of Intellectual Philosophy; but a brief reference to the faculties of the Mind, their powers and functions, for the *purpose of identifying it as a substantive agent*, is all that is contemplated in this chapter. The Intellectual department will first receive attention.

Consciousness of existence is the first and basal act of the Mind. The simple conscious thought, "I am," is an authoritative act of the Mind in regard to itself, and from this act all things else are excluded. It is Mind looking at itself and to its act, without regard to its relations. It denies nothing and affirms nothing but the "I am," that is, its own existence, and *being* conscious that what it says is true, *a contrary consciousness cannot be realized*.

Mind is correlated to a universe of ideas, and hence the necessity that man should be a thinking being, and capable of grasping truth. Were Mind infinite in capacity, it would be capable of comprehending all truth at a glance; but its limited and slow moving powers imply that it can take but a limited range at best through the vast realm of what may be known. There is a class of truths which Mind perceives intuitively, that is, stands face to face with them, and their verity can neither be proved nor denied. Their certainty is so apparent that all other truths, facts, and arguments cannot increase it. The correlation of this class of ideas to the laws of thought is so exact and complete that it is as impossible for a doubt to arise in the Mind in regard to their verity as to its own existence. It is an *a priori*, or self-evident truth, which can neither be proved nor denied, that two parallel lines, however far extended, will never meet; that a part of a thing is less than the whole; that the *ego*, which knows objects external to itself, knows its own

body as one of those objects; that the ego is a persistent entity, while all things around it are in a state of perpetual change; that through the sense-organs it has access to an external world of reality; that there may be true and valid mental processes, especially in the matters of perception and memory; that every change or effect must have a cause, and a cause adequate to the effect, and that the same cause will invariably produce the same effect; that is, it is an *a priori* conviction or intuition of the Mind that uniformity characterizes the operation of the laws of nature.

An intuition of these truths arises from the structure of the Mind, and we believe them as a matter of necessity. Mr. Stewart says: "In all these cases the only account that can be given of our belief is, that it forms a necessary part of our constitution, against which Metaphysicians may argue so as to perplex the judgment, but of which it is impossible to divest ourselves for a moment when we are called to employ our reason, either in the business of life or in the pursuit of science." What is true now in the Mind's relation to ideas was true in the days of Aristotle. The great Stagyrite said: "Except some first principles be taken for granted there can be neither reason nor reasoning, . . . and that if ever men attempt to prove a first principle, it is because they are ignorant of the nature of proof."* Such is the strength and grandeur of a self-revealed truth, that

* "Metaphysics," book iv.

Mind, in its behalf, disdains the aid of all collateral support.

In the days of the Schoolmen, and even since the time of Descartes, attempts have been made to buttress the *a priori* perceptions with proof and argument; and because such illegitimate arguments were easily swept away, it was falsely inferred that the truth itself was logically overthrown. Still, however, they stand, and they will continue to hold their place in consciousness till the constitution of the Mind itself is changed.

Thus Mind finds itself conscious not only of existence, but that its place in the universe is in the realm of ideas. Its essence is to think, and, beginning with a consciousness of self and of those truths which are nearest and self-revealed, and which constitute the roots of all knowledge, it finds that means in abundance are afforded it for enlarging, indefinitely, the boundaries of its vision.

§ 3. *Sensation a Means of Knowledge.*

Sense-organs of wonderful and delicate construction are furnished it, by and through which direct access is gained to an external world.

A perfect sensation embraces a nervous thrill and an action of Mind, which, together, results in a pure mental perception. I bring the sense of taste into contact with a lemon, and a peculiar nerve is excited sharply thereby, and in that subjective feeling is the physical part of the sensation; but my experience

does not end here. Mind perceives that there must be a cause for the excitement of that nerve, and, further, that the cause is a certain quality possessed by the lemon-juice. I am at the *same moment* conscious both of the physical and mental parts of the sensation, that is, of the sour taste and of the knowledge I derive from it. Mind does not come in contact with the lemon-juice; but in the sensorium it does come into direct contact with the impression this juice has made upon the nerve of taste. This knowledge thus derived we call a Perception, which is a pure intellection.

In like manner Mind makes use of all the senses in scanning a universe of Matter, its properties, forces, and motions. In every case it sits in judgment upon the impressions made upon the sense; and such is the uniformity of the laws of Nature, that their significance is soon learned and seldom forgotten. The same nerve-sensation always results in the perception of the same cause. Consciousness perceives the sense-impression and that which produces it at the same moment, and, together, they form a unit of experience.

These senses would not be dormant or useless even if to their action were given physical limitations. Nervous irritations will set the body in motion, even where there is no active Mind, as in cases of the softening of the brain, to give it direction. The new-born infant, probably, receives its first food as the

result of nervous irritation. Start the frog in the water whose cerebral brain has been removed, and the consequent irritation of the nerves of its body and legs will keep it moving in a direct line till its strength is exhausted, or, till it comes into contact with some object that arrests its progress.

But the sense-organs, with Mind back of them to use them, present a different aspect. The fires of thought flash from the eye; through the ear Mind drinks in floods of harmony; and each separate department of nature is explored through the sense channel which gives Mind access to it. As a consequence, a vast number of facts are accumulated, presenting to the Mind an incredible amount of heterogeneous and partially-understood subjects. If the powers of Mind were limited to its intuitive perceptions of truth, these would constitute man an exalted being; but they serve simply as the base on which other truths of an equal, if not a higher, order are built.

§ 4. *Province of Reason.*

Intuitions and perceptions which have not been subjected to analysis and classification are but the crude material which must be taken up by REASON and wrought into systems of truth; and then they may properly receive the high appellation of Knowledge, Science, or Philosophy.

In handling its intuitions and perceptions, Mind finds within itself a depository in which the thoughts,

observations, and experiences of the past are stored, called Memory, and in a few cases this faculty possesses a marvelous retentive capacity. Ordinarily, if Mind give close attention to a fact or a subject, the memory is retentive; if the attention is faint and brief, the memory is weak. But in an active, healthy Mind, such is the grasp of memory that not much is forgotten, beyond recall, which is of value in argument, or in the practical affairs of life.

As a further preliminary to reasoning, Mind possesses imagination, the re-creating power to form conceptions. A picture, a landscape, a friend may have been absent for long years, and yet Mind can form conceptions of them, and see them as they were. A conception is not always a correct picture of reality, but it is a help to the Reason in arriving at a correct understanding of complex and related things.

It is necessary that Mind examine separately and severally all the elements and properties which enter into a compound substance, or a compound proposition; hence it is invested with the power of abstraction, which opens the way for analysis, and soon, one by one, all the individual elements of the case receive the concentrated scrutiny of the Mind. It is found that a heterogeneous mass is made up of a score of unrelated units; and Mind could proceed no further were it not that it has the ability to classify, and classification leads to generalization, the final resting-place of the Mind. When possessed of a fact,

in which is included all the facts in the universe of a class, nothing more is wanted, and Mind is content.

Thus starting with a full complement of intuitive ideas, Mind perceives itself locally in the midst of a universe of truths, and, by analysis and abstraction, each fact, each thing, and each property of every fact and thing is subjected to careful examination, and Reason concludes this process of forming a correct judgment by classifying the units, putting them in their proper relations, and generalizing the whole. Such are the necessary and uniform steps taken by Mind in every process of reasoning, namely, Intuition of basal ideas, Perception, Memory, Conception or Imagination, Abstraction, Analysis, Classification, Induction, and Generalization.

The field of action given to Mind for the exercise of these powers is practically infinite; and the greatness of the Mind may be inferred from the place it holds and from the character of the work assigned it, in the plan of nature. The limits of its own estate it cannot pass, nor can any thing below it invade its province. Mind acts upon Ideas, and Ideas act upon Mind as sharply as one mass of Matter acts upon another; but between Mind and Ideas on the one hand, and Matter on the other, there is no relationship nor possible contact. Not even can the senses touch an Idea any more than blocks or stones; they can but share in sensations.

Let us, as spectators, attend the Mind during some of its labors, excursions, and flights in the realm of truth, as illustrative fragments of its operation. One Trumber Henry Safford, recently a resident of Chicago, was examined at the age of thirteen by Rev. Mr. Adams, of Vermont, in Algebra and the higher mathematics. The problems given were complex and very difficult, but were resolved mentally, and generally on the instant. For the purpose of testing his ability at computation, he was asked to multiply in his mind, without the aid of pen or pencil, 365,365, 365,365,365,365, by 365,365,365,365,365. It is said that the Mind in its supreme action so agitated the body that it danced about the room like a top; that his hands pulled his pantaloons over the tops of his boots; that his eyes rolled in their sockets; that he bit himself, and in one minute gave the product: 133,491,850,208,566,925,016,658,299,941,583,225. A full account of this giant labor of Mind was given to the public by Rev. Abel Stevens at the time it occurred, and of its truthfulness there can be no doubt. Think of the memory of Cyrus and Mithridates, who knew every man of their vast armies by name; or of the mental ability which, on hearing read a poem or an act of Parliament of considerable length, could, from memory, repeat every word of it. The "Iliad" will remain for all time to come a monument of the vast genius which created it. The minds which inspired the tragedies of Shakespeare and the match-

less epic “Paradise Lost,” must have lived and had their being almost exclusively in the world of thought.

§ 5. *Relation of Sense and Reason.*

Though Mind and Sense-organs often act in concert, yet the part each performs is so peculiar that we have no difficulty in distinguishing one from the other; that is, a nerve-thrill from a thought of the Mind. Apparently the sun is visible to the eye of the spectator, and if I ask this seeing organ to tell me its magnitude, it may be supposed to reply: “The sun is a bright, light-giving substance, an indefinite distance away, and has a varying diameter of from one to two feet.” I appeal to the Mind of this spectator, and ask its opinion. It does not venture a guess, but from mathematics weaves a measuring-line, and by its use ascertains its exact magnitude. It then responds: “The sun’s diameter is 850,000 miles; its circumference is about 2,550,000 miles; and it is 1,400,000 times as large as the earth.”

“Then why is it apparently so small?” inquires the astonished eye.

Mind answers: “The sun is 93,393,000 miles distant from us; and the farther an object is from the eye the less is its apparent magnitude: but with the Mind’s action space, time, and distance do not intrude as factors to obscure thought, or in any way affect its action.”

I then ask this spectator to turn his eye upon the star Vega, and tell me its magnitude. It replies: "Vega is a star about as large as a small sparkling lamp, and seems to be as far away as the sun."

I then submit this question to Intellect. Its mathematical line is again called into requisition, and all the facts in the case are gathered together; idea is added to idea, equation follows equation, and, after a long and laborious process of thinking and figuring it decides that Vega is fifty times as large as the sun—more than four millions of miles in diameter, and 200,000 times, or 18,600,000,000,000,000 of miles from that orb, and that it is slowly moving toward us. To illustrate the idea of such vast magnitude, Mind says: "Could I make an examination of all sections of the earth's surface in one hundred years, I should require seven millions of years to make a like examination of the star Vega."

But I am anxious to know the composition of the sun and stars. Do they contain such substances as form the earth? Do common elements of union exist between distant worlds, and is the universe controlled by one set of laws? These questions I find are outside the range of all the senses, and they can make no response. I summon Mind to the front, and call for an answer. It is not ready, and asks for time to think—to reason. It soliloquizes: "To answer these questions the sunbeams and star-rays must be made to speak; they must tell from whence they came, and

what they left behind them. Mind then ingeniously invents an instrument it calls a spectroscope, and with this analyzes the sun's and star's rays, and compels them to tell the nature of the substances which compose the orbs from whence they came. It then gives answer: "I find that the sun and all the other heavenly bodies I have had time to examine are composed, in part at least, of the same kinds of elements which enter into the composition of the earth. The hydrogen of our bodies does not differ from the hydrogen of the sun. In the carbon, iron, oxygen, and sulphur of our bodies we enjoy a sort of kinship with the most distant stars."

§ 6. *Triumphs of Intellect.*

It is thus that Mind explores a universe of things, facts, verities, and principles, which it only can grasp; and does not its action proclaim its exalted nature?

Some years ago two philosophers, one English, the other French, noticed at the same time a slight perturbation in the motion of the planet Uranus while passing a certain part of its orbit. Here is a manifest disturbance in the heavens, nearly three billions of miles away, and Mind, in the indulgence of its undying propensity to understand things, must solve the problem, if possible. All the facts which can possibly enter into the case are collected together, their force and bearing are developed according to mathematical

laws, and the conclusion is finally reached that at such a place in space, and at such a distance from Uranus, there exists a hitherto unknown world, whirling its way through space around the sun outside of Uranus. Instructions were sent to the managers of the various observatories to turn their telescopes upon such a spot in the heavens, at such an hour of the night, for there, they were told, they would behold the new-found planet: though the eye of no man had seen it, no Mind had grasped it. It was thus that two minds, without concert, found the planet Neptune, slowly moving in an orbit around the sun, at a distance of 2,700,000,000 of miles distant from that orb. How brilliant this achievement of Mind! Mind, ranging alone billions of miles through space in search of an unknown and unheard-of world, *finds it*, and shows it to us!

If the gap is deep and wide and impassable between the vegetable and animal worlds, it is equally so, if not far greater, between the animal and intellectual natures. The space between the living, but unthinking, flower and the mighty thought-grasping Mind approximates infinity. Mind is, slowly but surely, achieving a triumph over Matter. It is taming and harnessing to the ear of progress the strongest elements and wildest forces of Matter. In the use of nitro-glycerine and the electric spark it is capable of developing a force, either for good or ill, that rivals the power of the volcano; it commands

the lightnings as the boy toys with his Christmas gifts; and so completely have the forces of steam been utilized that they do our hard labor, and, against wind, waves, and tides, propel our palatial ships around the world!

Nature is a vast workshop of various departments and various workmen. Inorganic Matter is the stock taken by vegetable vital elements as the workmen, and wrought into organic bodies of the vegetable kind; vital elements of a higher order now appear, and using vegetable organisms as their stock, they give us a kingdom of moving, sensitive animals. Each of these two kingdoms has a base and laws of its own separate and distinct from the other. Though closely connected, neither one is in any sense the origin or cause of the other. In the midst of this vast and complex scene Mind appears, and, seeing itself so unlike every thing else, inquires: "What am I? and what are these worlds that surround me?" A chaos of truths, facts, ideas arises, and Mind finds that it is its province to perceive, to retain, to arrange, to classify, and to bring order out of and throw light over this chaos. As a store-house of ideas, Mind finds that its capacity is vast and never exhausted, and that it can use any part of its supply at pleasure. Often it is away among stars, planets, distant portions of the earth, and there is no weariness to its discursive wing; but quite as often its habit is to retire from the sensorium, abandoning the use of the senses, and work

out great problems alone in its own hidden sanctuary. The more completely Mind is isolated from the senses and all outward objects the more efficiently it acts in the pure realm of ideas.

§ 7. *Unconscious Mental Action.*

In sleep, in protracted seasons of trance, and in certain cases of disease, the body seems to be without thought, but, as the sequel proves, Mind is at its post, and often very actively at work; but its work is done by itself, away from the sensorium and from consciousness. In the chain of thought which is brought to light there has been long and laborious action; this action and these thoughts are phenomena, and we are rigorously compelled to regard the Mind as their active cause.

Sir Benjamin Brodie says: "It seems to me as if there were in the Mind a principle of order, which operates without our being at the time conscious of it. It has often happened to me to have been occupied by a particular subject of inquiry; to have accumulated a store of facts connected with it; but to have been able to proceed no further. Then, after an interval of time, without any addition to my stock of knowledge, I have found the obscurity and confusion in which the subject was originally enveloped to have cleared away, the facts have all seemed to settle themselves in their right places, and their mutual relations to have become apparent, although I

have not been sensible of having made any distinct effort for that purpose."

With its supply of accumulated facts Mind retires from the sensorium for their consideration. Every thinker can relate similar experiences by the dozen, and it may be accepted as a fact, that unconscious mental action is common to mankind. If, then, without the co-operation of the Will, and without the recognition of Consciousness, the Intellect can reason, such process of thinking, however long protracted, can have but the slightest connection with cerebral or nervous action. In laughter, in weeping, and some other emotional expressions, physical and mental actions seem to be closely connected, but in abstract reasoning they seem to be equally remote. The facts in this case will justify a still stronger statement. The senses may be occupied with external objects, and a measure of attention may be given to them; but there is going on an under-current of clear, logical thinking that we are not conscious of at the time. The Reason has got hold of a subject, and it can be called off only by a sudden wrench and a persistent effort. Thus the cerebrum at times is a workshop in which the Mind quietly and silently carries on its work until completed and the result is announced to Consciousness. A writer in the "British Quarterly Review" affirms that Charlotte Bronté sometimes remained for weeks together unable to complete one of her stories. Then some morning, on wak-

ing up, the progress of the tale would be clear and bright in the distant vision before her. A pathway had been found and explored, but Intellect made no report of its labors till they were completed. There was no conscious physical participation in what had been done. Could such labor be carried on by the Matter of the brain, and no impression be made upon its ganglia of nerves? This is but one of the hard facts Materialists have to meet and remove.

The following extract from a letter to a friend is Sir William Hamilton's account of his great mathematical discovery of the method of quaternions:

“To-morrow will be the fifteenth birthday of the quaternions. They started into life and light full grown on the 16th of October, 1843, as I came up to Brougham Bridge (while walking with Lady Hamilton). That is to say, I then felt the galvanic current of thought close; and the sparks which fell from it were the fundamental equations between i , j , k exactly such as I have used them ever since. I pulled out on the spot a note-book—which still exists—and made an entry on which, at the very moment, I felt that it might be worth my while to expend the labor of at least ten (or, it might be, fifteen) years to come. But then it is fair to say, that this was because I felt a problem to have been that moment solved, an intellectual want relieved, which had haunted me at least fifteen years before.”

The phenomena here detailed is inexplicable on a

materialistic basis. Without conscious action on the part of Sir William, while walking with his wife, and engaged in a chatty conversation with her, the Intellect, the ever-busy inner Man, arrests him, crying, "Eureka, Eureka!"—"I've found it, I've found it!" He stops, looks at it, and, sure enough, in a moment, when otherwise employed, he is presented the great truth for which he had searched fifteen years! There must be something in man that thinks, and that thinking cannot be performed by unconscious, nervous Matter. On the hypothesis that man is a Mind, dwelling in a house of clay, such phenomena are stripped of their mysteries.

"Littell's Living Age" quotes the following incident from the "Quarterly Review:"

"The first form of the binocular microscope" (which gives the effect of solidity by an application of the principle of combination of two perspectives, discovered by Wheatstone) "labored under the disadvantage of considerable loss of light in producing the desired result. It could also be used only as a binocular. Mr. Wenham endeavored to devise a method by which only a single prism being used, the first evil might be remedied, and by the withdrawal of the prism the second disability removed. He thought of this long, but could not hit upon the form of prism which would satisfy the conditions, and laid his microscopical studies entirely on one side. About a fortnight afterward, "while reading a

stupid novel," as he said, "the form of the prism that would answer the purpose flashed into my mind. I at once drew a diagram, and worked out the mathematical conditions, and the next day constructed the prism, which answered perfectly well, and furnished the type upon which all binoculars in ordinary use have been constructed."

The following extract from W. B. Carpenter's "Mental Physiology" (pp. 515, 516) is worthy of attention. His use, in part, of a materialistic terminology need not give alarm, as language cannot obscure such facts as he clearly brings to light. He says :

" Having found reason to conclude that a large part of our Intellectual activity, whether it consists in reasoning processes or in the exercise of the Imagination, is essentially automatic, and may be described in physiological language as the reflex action of the cerebrum, we have, next, to consider whether this action may not take place unconsciously. To affirm that the cerebrum may act upon impressions transmitted to it, and may elaborate intellectual results, such as we might have attained by the intellectual direction of our Minds to the subject, without any consciousness on our part, is held by many Metaphysicians, more especially in Britain, to be altogether, and even a most, objectionable doctrine. But this affirmation is only the physiological expression of a doctrine which has been current among the

Metaphysicians of Germany from the time of Leibnitz to the present day, and which was systematically expounded by Sir William Hamilton, that the Mind may undergo modifications, sometimes of very considerable importance, without being itself conscious of the process until its results present themselves to the consciousness in new ideas, or new combinations of ideas, which the process has evolved. This unconscious cerebration, or latent mental modification, is the precise parallel in the higher sphere of cerebral or mental activity to the movements of our limbs, and the direction of these movements through our visual sense which we put in train volitionally, when we set out on some habitually-repeated walk, but which then proceeds not only automatically, but unconsciously, so long as our attention continues to be uninterruptedly directed from them. It was by reflection on this parallelism and on the peculiar structural relation of the cerebrum to the ganglionic tract which seems to constitute the sensorium, or center of consciousness, alike for the external and the internal senses, that the writer was led to the idea that cerebral changes may take place unconsciously, if the sensorium be either in a state of absolute torpor, or be for a time non-receptive as regards the changes, its activity being excited in some other direction; or, to express the same fact psychologically, that mental changes of whose results we subsequently become conscious may go on below the plane of consciousness either during

profound sleep or while the attention is wholly engrossed by some entirely different train of thought."

What Mr. Carpenter says in regard to the relation Mind sustains to the Matter of the brain is mere conjecture, for on that subject nothing whatever is known. His physiological statement of unconscious cerebral action may contain some truth, and it may not. His testimony that the Mind can act so abstractively from the body that there will be no consciousness of its action, touches the point we wish to emphasize in this discussion.

The question, Does the Matter of the brain initiate thought, or is the Mind, in and of itself, capable of intellectual processes? receives, from the above considerations, as full and decisive an answer as probably can be given to it. We can conceive how a man can walk automatically; but if the action of the brain-nerves and thought are one and the same thing, or, in other words, if thought, will, and feeling are but the nerves or brain in a certain "state," as Mr. Bain teaches, we do not see how unconscious mental action can be possible. The supposition is as if one should be subject to serious nervous action, and yet not know it; or purposely look at an object and yet not be conscious of it. Unconscious abstract mental action can be accounted for only on the hypothesis that the Mind is in itself an entity, capable of self-direction. A state of reverie, a trance, sleep, somnambulism, and other like mental phenomena, might be adduced as

illustrations of the same subject. The blaze of a lamp can exist only in close connection with the wick, but it seems that Mind exists, and carries on long reasoning processes, when no connection can be traced between it and the body.

§ 8. *The Will.*

Another clearly-defined element of the Mind is the Will, in which is neither thought nor feeling. The Will is that power of the Mind which decides what action shall be taken in a given case, when other action is possible. Between the wise and the unwise, the good and the bad, the right and the wrong, Intellect must pass judgment. What ought or ought not to be done will have the approval or disapproval of conscience, but what action shall be taken in given alternatives is a matter of Will.

The confusion and obscurity which the genius of Edwards has thrown around this question has been removed by the common sense of mankind, aided by the superior ability of Albert Bledsoe, Dr. D. D. Whedon, and others, and it is no longer difficult to give a correct definition of this faculty of the Mind. Edwards gave us as his conception of the Will the following shambling string of words, but one of which expresses a pure Will-power: "Whatever names we call the act of the Will by—choosing, refusing, approving, disapproving, liking, disliking, embracing, rejecting, *determining*, directing, command-

ing, forbidding, inclining, or being averse, a being pleased or displeased with—all may be reduced to this of choosing." The word choose means, that we *prefer* one to a number of objects; that is, *judgment*, not will, decides which is the best and the most desirable, and its decision is a matter of necessity. In such a case may be seen an action of Intellect and Sensibility, but it may be unlawful for us to touch the preferred and desired object, and, consequently, Will flatly refuses it. *Choice*, that is, an intellectual preference, *may be one thing*, and the *action of the Will the opposite*. Necessity is laid upon a hungry man to *choose* a loaf of bread to a crumb, but if to take the loaf would be to steal, and to take the crumb would be to use his own, the Will should decide to take the crumb, though it might determine to take the loaf. Pure Will power does not spring from judgment nor sensibility; it has a basis of its own, and it performs a self-originated act; for it is a proper subject, always acting in its own way in reference to its own objective. It can do no work but its own, and all the other powers of the Mind, united or separate, cannot do its work. Will is not only an agent, but it is the base of all human agency. A consciousness that we are endowed with Will power is the foundation of all moral responsibility. Will may be defined as that part of the Mind which is endowed with power to purpose one of two or more acts at a given time, with no change of circum-

stances; or briefly: Will has power to originate one of many possible acts at the same time.

In the following expressions are embodied the action of pure Will: "I purpose," "I determine," "I intend," "I design," "I resolve," "I will." The expressions, "I desire," "I prefer," and "I choose," contain both intellectual and emotional elements, and lead to confusion, obscurity, and trouble when applied to the Will. By casting the word choice out of the nomenclature of human freedom, as embracing intellectual and emotional acts, we abolish, at a blow, the argument of the Necessitarian based upon the governing power of the strongest motive. It cannot be denied that man is compelled to prefer the best, and if that is an act of Will, he is not a free agent.

The Will part of mind manifested its imperial authority in a memorable saying of Luther: "I shall attend the diet at Worms, although the devils there may be as thick as the tiles upon the roofs of the houses." Through the force of mere Will power savages have submitted to be tied to trees and roasted alive, and not a murmur was allowed to fall from their lips. All the mighty agonies the physical system could be made to endure were not equal in strength to the power of the Will.

Nelson, Wellington, Napoleon, and Grant were quite as much indebted for their great successes to the steadiness and persistence of their Wills as to the brilliancy of their Intellects. A Will that remains the

same, though every thing about it may change or pass away, in dignity and grandeur, ranks with Reason itself.

§ 9. *Emotion as a Part of the Mind.*

Emotion or Feeling constitutes another and the final department of the human Mind.

Conscience, as a moral Feeling, holds a conspicuous and commanding place in man's moral nature, giving a feeling of approval to the supposed right, and a feeling of condemnation to the supposed wrong; but its full consideration must be deferred for the present. The more common and active emotions of the Mind are joy, grief, love, hate, desire, aversion, hope, fear, remorse, and despair. In emotion there is no thought nor Will power, nothing but pure Feeling. Emotion may be of the nature of a thrill, a warmth, a weight, a shade, or absolute darkness. The nervous system may experience a shock that will be responded to by the emotions of the Mind, and the two classes and kinds of feeling so mingle that the distinguishing line between them can scarcely be traced. In general Feeling is a necessity, and admits of but limited control.

Out of the emotions of Mind arise the sympathetic breathings of humanity. They constitute the foundation of the social and political structures of families and tribes and nations. All the real living thoughts of practical life, the religious especially included, are crystallized into corresponding feelings,

and thus preserved, they remain the most sacred part of man's being. Emotions, when unperverted and pure, are authorized to speak for the heart as its living oracles, and their voice deserves the profoundest study of the Intellect. The spontaneity of their nature speaks, and its utterance is the voice of God.

In the history of our race the emotional part of the Mind, far more than Intellect and Will together, has given character to human life and destiny. Man finds it easier to be wafted by a wave of emotion, than by the employment of cool reason to steer the ship against wind and tide. It matters not what most people may think or believe, when they come to act, their action is largely inspired and directed by feeling.

Human feelings then, as objective realities, should receive the constant and profound consideration of the Intellect, for to know them is to know ourselves and to know our race. We can know others only so far as we know ourselves, and it is in a personal experience of love, and joy, and pain, and sorrow that we are able to interpret the longest chapters of human history.

The marvelous power of the Emotions may influence, either for good or evil, both Intellect and Will. If properly developed and well regulated, their inspiration will give intensity to thought and light up the dark places of its pathway with its added rays. Will oftener yields to the power of depraved passions and

abnormal appetites than to the difficulties that may arise from without, but when the inward impulse of emotion accords with judgment and conscience, the Will finds it an easy task to act in accordance with them.

The Emotions are most easily reached through the sense-organs and the nervous system generally, and for that reason they have been regarded as the lower, the more earthly, and less important part of the Mind. But inasmuch as they answer perfectly the end of their existence, and as Mind would not be Mind without them, no mark of degradation or of inferiority should be placed upon them.

Scarcely a day passes that the emotions do not serve as the educators of the Intellect, and in matters, too, which it could not otherwise understand. I had long been anxious to obtain a clear idea of the force developed by the motion of a long and heavily-laden freight train of cars as it swept along a down-grade at the rate of forty miles an hour. Various estimates and tests resulted unsatisfactorily. A knowledge of the tonnage and velocity of the train were only ideas in the Mind, and I could not put them together so as to realize the desired knowledge. I finally took a stand close by the track as an immense train thundered by. My steadiness of nerve and self-possession were tested to the uttermost, and in the sensations and emotions I felt, produced by the swirl and violent shocks of the atmosphere and the jar of the ground,

I obtained my clearest conceptions of this matter. By noticing the nervous shocks and the attendant emotions, the Intellect received, in some measure, the desired information.

During our late war I was a visitor at Fort Gregg, when, with heavily-charged guns, the artillerymen were throwing shot and shell into the city of Charleston. It was a grand sight (to us) to see heavy masses of iron carried gracefully through the air a distance of five miles and dropped into the city. As I gazed upon the scene I was anxious to form a clear concept of the force developed by the exploded powder, which could carry the ponderous iron so far. As the artillerymen could render me no assistance, I protected with cotton my ears as well as I could, and took my stand close by the gun at the time of its discharge. The first conscious sensation was that of crushing bewilderment; then followed conscious thought of the reality; gun and carriage and the ground seemed to be alive and in the air; and on the whole, the concussion of the atmosphere gave my entire system, nervous and emotional, the severest shock it had ever experienced. As an aid to information I would not exchange that experience for all the facts and figures the engineer can bring to bear on this subject.

In the same way, some years ago, I tried to measure the strength of Niagara Falls. I stood upon a rock which, at that time, rested on the brink of the precipi-

ipice just below where Terapin Tower once stood. Only persons of steady nerves would be safe for a moment in such a position. The near sight of the plunging waters, pounding each other before my eyes in the abyss below, the painful tremor of the earth, the roar of the cataract, the palpitation of the air, and all on a scale of surpassing grandeur, made an impression upon my feelings that cannot be forgotten. I never think of Niagara without thinking of that experience, and the one will not be forgotten till the other shall fade out of existence.

Emotion is the source of human spontaneity, and to understand the heart is to know man as he is. Much that we see in life is artificial, much is the result of example and habit; but below these in the emotions, the ever-open book of nature, we may see man as he really is.

The Man, the Mind, the Intelligence, engaged in deep, protracted thought, with high, steady purpose and inspired by a flame of emotions, is before the reader. Is it not blasphemy to say he is but a clod?

CHAPTER VI.

INTERACTION OF MIND AND BODY.

“Socrates. In like manner, the lyrist, is he not different from the lyre he plays on ?

Alcibiades. Undoubtedly.

Socr. This, then, is what I asked you just now: Does not he who uses a thing seem to you always different from the thing used ?

Alcib. Very different.

Socr. But the lyrist, does he use his instrument alone, or also his hands ?

Alcib. Also his hands.

Socr. He then uses his hands ?

Alcib. Yes.

Socr. And in his work he uses also his eyes ?

Alcib. Yes.

Socr. We are agreed, then, that he who uses a thing and the thing used are different ?

Alcib. Yes.

Socr. The currier and lyrist are, therefore, different from the hands and eyes with which they work ?

Alcib. So it seems.

Socr. Now, then, does not a man use his whole body ?

Alcib. Unquestionably.

Socr. But we are agreed that he who uses, and that which is used, are different ?

Alcib. Yes.

Socr. A man is, therefore, different from his body ?

Alcib. So I think.

Socr. What, then, is the man ?

Alcib. I cannot say.

Socr. You can at least say, that the man is that which uses the body ?

Alcib. True.

Socr. Now does any thing use the body but the Mind?

Alcib. Nothing.

Socr. The Mind is, therefore, the man?

Alcib. The Mind alone."—PLATO.

"There is not a natural action in the Body, whether voluntary or involuntary, that may not be referred to the peculiar state of the Mind at the time."—DR. JOHN HUNTER.

§ 1. *Mind and Body Two Substances.*

IF between Mind and Body interaction can be detected, as between two different and distinct substances, in that fact Materialism will encounter a difficulty not easily managed. It is admitted that the association of Mind and Body is very intimate—as intimate as possible without unity—and yet we expect to make it appear that in man there are manifest two substances which are so unlike that it is not possible for either to be absorbed by, or lost in, the other.

Our knowledge of Mind is confessedly limited to personal consciousness and mental phenomena, while acting in close association with the intricate physical organism; nevertheless, we shall endeavor to show that it so stands forth in its own individuality and peculiar power as the man proper as to present the phenomenon of one substance acting upon another and different substance.

In man we recognize Matter, Life, and Mind; the Life being the agent which has worked the Matter into the organic structure occupied by the Mind.

Life is the body-builder; Mind occupies the building. Life serves as a connecting link between Mind and Body; it is the passage-way from the one to the other. Vital forces are diffused throughout the body: Mind, locally, is closely associated with the sensorium—the brain castle—and from that center its power goes forth to all parts of the body through its Life. Animals have a kind of mind, connected by animal life with their bodies, but its nature and destiny are problems we undertake not now to solve; we cannot even understand the how or the wherefore of the subtle influence which our Life has over our body, much less the dominion which the indwelling Intelligence we call the Self, exercises over the wonderful mechanism of the body and its still more wonderful Life.

Our argument proceeds on the hypothesis that where there is unity, whether in substance or organism, there is harmony in action; or, where there is diversity of being, either in nature or tendency, there is diversity and often opposition in action. If, when tested by these principles, it shall appear that Mind is one Substance and Body another, we need not fear the success of Materialism. We will first make clear, by illustrations, the basal principles of the argument.

§ 2. *Unity and Harmony.*

Between man's life and its organic body, when that structure is perfect, absolute harmony prevails as the

result of the adaptation of the organism to its life. The vital agent, in building, formed for itself a structure exactly suited to its own wants. A human life could do nothing with the organism of a fish, a bird, or a beast, for the want of correlation. In all departments of organic nature Body and Life constitute an organic, consequently, a harmonious, unit.

Even in mechanics may we detect the operation of this law. A watch or an engine is a unit of structure; each part is correlated to some other part, or parts, and the whole to the specific and ultimate object it was intended to accomplish. Could such a machine be perfect, there would be no friction, no reaction; all the parts would operate in the silence and simplicity of a unit under the control of one law or force, and each part would contribute its quota, and no more, to the specific object of the structure. Were the steel of a cambric needle as smooth, and the point as sharp, as a bee-sting or a nettle-sting, the simplicity of its action would correspond to the vital action of an organic body.

With this unity and harmony contrast the opposition which prevails between the anvil and the sledge-hammer playing upon it. Here is duality of substance and purpose, and the clash of opposing forces is the result. Now the agents in the field are two, and they have nothing in common. On the one hand there is power, and on the other resistance; each has being, properties, and functions independent of

the other, and both might be used in other relations. Reduce the hammer and the anvil to unity, and both would be destroyed, so far as the purposes of their existence is concerned. The two laws, unity and harmony, complexity and diversity, play a mighty part in the affairs of this universe.

The various modifications of these forces, and the endless results that follow, surpass human comprehension. As nothing exists in isolation, independent, and without relations, these laws reach to every thing in both the vital and material worlds. Wherever between different substances the law of affinity prevails, unity and harmony will be established; where repulsion prevails, there will be complexity of composition and diversity of action. The vitality of a tree is in perfect accord with its organic roots, trunk, branches, leaves, buds, and fruit, and all these parts are in harmony with each other, for the tree is an organic unit. In a healthy organism, whether human or animal, the Life acts in unison with the heart, the lungs, the stomach, the veins, the nerves, the blood, and all the organs act in harmonious concert with each other; and together, Body and Life constitute an organic unit. The variety of action, as distributed among the parts, is so firmly presided over by a single Idea that every act of every organ tends to produce the general results. The machinery of the eye may be taken as an illustration of the whole body. The thirteen distinct parts, no two of which

are at all alike either in structure or function, have more than one hundred correlations, yet the parts are so co-ordinated, that the law of unity and harmony holds sway throughout all departments of this organ.

But man, considered as Mind and Body, does not come under this law, but the opposite law. Diversities of power and action indicate diversity in agency, as between Body and Mind we look in vain for unity anywhere. The ends Mind has in view the Body knows nothing about; and in thinking, the body seems to be the unconscious, passive instrument of the Mind. Between Mind and the brain organ there is, without doubt, an important but utterly unknown relation; but consciousness proves that the correspondence is that which subsists between an agent and an instrument it may use. A mindless brain is as powerless to think as an amputated foot to walk. The lower the order of the Mind the nearer the Mind and Body approach to apparent unity, and the more brilliant the Mind the wider the gap between mental and physical action. But, in even the prattling child as enormous a distinction must be made between Body and Mind, as between any two substances in which action and interaction are constant.

§ 3. Different Tendencies of Mind and Body.

If Mind be one substance, and the physical organism another and a different substance, we should infer,

a priori, that their tendencies and actions would not always be in harmony; that each, in some respects, would have ways of its own, and be indifferent to the other's ways, and that each would often feel the other's antagonistic or added power. And is it not a fact, attested by every human consciousness, that Mind, in the exercise of its right of self-assertion and imperial power, does hold sway over the Body, controlling, within certain limits, its organs and faculties?

In the main, Mind and Body act in harmony, because the latter is subject to the will of the former. The presence of Life in the Body overcomes the laws which control matter in its inorganic state, and thus, through its Life, the Body is placed at the disposal of the Mind. My arm now rests upon the table, and the law of gravitation tends to keep it there, just as it does my inkstand, and, in writing this sentence, my hand and arm are as much subject to mental power as my pen. The hand, aided by the entire Body, is no more competent to write a word than the unaided pen and ink.

The hand is but one of many organs which go to make up the body, and all alike are directly or indirectly subject to the action of Mind; not one is in the least degree responsible for the part it plays upon the world's great stage of action.

Thus when it is rigorously certain that one substance, having peculiar and specific powers of its own, is exercising absolute control over another and wholly

different substance, the conclusion is certain, that two substances are in the field, for a unity of substance cannot act upon and against itself.

§ 4. *Demonstrative Facts.*

Let us, for illustrations of this law, look at familiar facts. Out on the green I see six boys yielding to the physical law of gravitation, and lying prone on the ground. At a given signal, recognized by Mind, they spring to their feet; then one turns a hand-spring, another a somersault, another hops, skips, and jumps, another is poised on his head, and another hangs to a pole by his toes, and the other walks a rope. As I look on I ask: "What has set these six masses of Matter in motion, and in ways so violent and so different? To explain the phenomena I must pass beyond the boundaries of all I know of Matter, and find the directing and the inspiring cause in the intelligence and will of the Mind. Mind, in each of the boys, is a self-centered, originating power, hence each one plays the part that suits best his Mind."

A few hours later I see the boys, still and unconscious, in the deep sleep of midnight; the Mind has retired from the sensorium and is quiescent, or perhaps it is performing work of which consciousness takes no note,* that the body may find recuperation in repose. The physical organs are at work as usual, the heart beats, the blood circulates, digestion and

* See chap. IV.

assimilation go on, and the life of the body is as active as ever. The astonishing thing in the case is, the quiescence of the Mind. Both its absence and presence alike reveal its character as a non-physical substance. Now let the peal of a fire-bell call back that Mind to its post, and in a moment those boys are on their feet, ready for any emergency. An idea has set the Mind in motion, and Mind controls the Body.

In executing a piece of music on a piano the lady's Mind is the performer; her feet, arms, and fingers, as fully as the keys, serve as instruments and nothing more.

It is an awful sight to see a squadron of armed men storm a battery, bristling with bayonets and defended by cannon belching forth fire, shot, shell, grape, and canister in a sheet of flame and iron hail. On the column advances with steady step, the front line falling like grain before the reapers. We think of the carnage and deplore the loss of life; but another and a higher consideration may engage the attention of a philosopher. Associated with these bodies is an imperial Intelligence, which has weighed in the balances of a sound judgment great interests, many of which will extend through coming years, affecting the welfare of millions of people; and inspired by ambition or by a holy patriotism these men voluntarily lay their bodies upon an altar of sacrifice that their children and children's children may have a home and a country. The appalling carnage, from which

humanity might well shrink, was not of sufficient force to cancel the power which Mind had over Body; and though every instinct and every impulse of the physical nature inclined in one direction, the imperial Mind dictated the opposite, and it was obeyed. On no other hypothesis than that Mind is a directing agent, distinct from the body, can such phenomena be explained.

On the other hand the Body, as one substance, may greatly influence the action of the Mind as another and associated substance. Disease of the body, spirits, and drugs introduced into it, paralyzing or unduly exciting the vital functions, may disturb the proper relation of Body and Life, and Mind is quick to feel and respond to such violence. Sever the nervous connection between the brain and the hand and the foot, and Mind has no further control over them. A pressure upon the brain-substance is instantly manifest in its effects upon the Mind.

The adverse physical condition of the native Australians, Bushmen of Africa, and the Fuegians, has, without a doubt, told with terrible effect upon the intellectual as well as the moral development of these peoples. And yet, as Prof. Huxley says: "Between them and the gorilla the distance is immeasurable, an enormous gulf, and, practically, infinite." Yet, as compared to the finest specimens of the Aryan race, they seem to have reached the verge of extinction. That they are human is not a question, but for many

generations they have suffered every privation possible and yet live. Not only has there been absent every comfort and every stimulant to noble action, but hunger, cold, bodily pains, and savage life have tended to imbrute their being. Speaking of the Fuegians, Darwin says: "How little can the higher powers of the Mind be brought into play! What is there for imagination to picture, for reason to compare, for judgment to decide upon?"

From these facts let no one rush to the conclusion that Mind rigidly follows the condition of the Body as effect follows cause, for there is a large class of facts which negative such an inference. Most of the finely conditioned physical structures we meet present a mental capacity of but an ordinary character, and many a Mind of surpassing strength has been practically disabled because its physical associate stood tottering for years on the verge of dissolution.

With this exposition of what we mean by the interaction of Mind and Body, as of one substance acting upon another and different substance, though closely associated and correlated, the way is now open to make an appeal to facts of observation and experience in further proof and illustration of the subject.

In our analysis of Mind, in chapter V, we saw that its endowments were many and various, and it will now appear that the action of each department may produce marked effects upon the body. Perception may make a discovery that will cause the body

to tremble. Fancy and imagination may create or transform objects into horror or beauty, affecting every nerve in the system, and the feelings of the Mind may make the heart sick and ache with pain. The external world through all the sense-organs may reach the Mind, and the reaction of Mind upon the Body may have the force of a shock. To learn how far Mind and Body act and react upon each other, we must go out among all classes and study humanity as it is seen in daily life. The question before us is to be settled, not so much by abstract reasoning as by observed facts and personal experience. The various incidents which, as illustrations of the general principle we may bring forward, may be taken as only a few samples among thousands that might be produced.

§ 5. *Miscellaneous Illustration.*

The action of Mind upon Body has intruded itself frequently upon the medical profession; and mostly to such collection of facts as it has made, because of their conceded authenticity, will we go for information. I make this general acknowledgment of indebtedness to the labors of others emphatic, as it will be impossible, in many cases, to give special credits. The author to whom I am indebted more than to any other is D. M. Tuke, M.D., of Edinburgh, and one of the highest medical authorities in Europe. He quotes Dr. John Hunter as saying: "I am confident that I can fix my attention to any part till I have a

sensation in that part." Think for a moment of the taste of a lemon, and the sensation of sourness will arise; then think of the smell of ammonia, and there will be a change of sensations. Some people can accelerate the beating of the pulse by fixing attention upon the heart. A thought of the dentist's forceps will sometimes quiet an aching tooth. Dr. Müller, an able psycho-physiological writer, explains such phenomena as follows: "The idea of a particular motion determines a current of nervous action toward the necessary muscles, and gives rise to the motion independently of the will." It should not be thought strange, if a measure of the power the Mind has over the arm it could extend to any part of the system. Dr. Müller says again: "Any sudden change in the ideas, though without motion, and having reference to mere extended objects, may excite involuntary motions—as laughter." Once more: "Any state of the body which is conceived to be approaching, and which is expected with confidence, its occurrence will be very prone to ensue as the mere result of that idea, if it do not lie beyond the bounds of possibility." It was the opinion of Dr. Elliston that "the phenomena of Mesmerism (so called) are all illustrations of the power of the will over the brain." This author, as quoted by Dr. Tuke, observes that "the action of the will on the sensorial fibers of the brain, the nature and laws of sensation, the extension of the doctrine of reflex action of the spinal cord to the encephalic

ganglia, and all the consequences which necessarily follow, cannot fail, I think, to interest the intelligent professional reader, and afford matter for deep thought." Dr. Müller holds the same view of the power which the will exerts over the body: "There is in the central organs a power of voluntarily directing the Mind to all the cerebral and spinal nerves, even to the nerves of common sensation and the nerves of special sense." This "power" in the central organs is will power. Again: "Ideas do not act merely on the motor apparatus by which they are expressed; they as frequently affect the organs of sense with their present sensorial impressions or images of the ideas." Herbert Spencer illustrates this principle when he says: "I cannot think of seeing a slate rubbed with a dry sponge without there running through me the same thrill that actually seeing it produces."

Dr. Tuke observes: "If twenty persons direct the attention to the little finger for five or ten minutes, the result will probably be something like this: a few will be unconscious of any sensation in this member; some will experience decided sensations—aching pain, throbbing, etc., and a majority will feel a slight sense of weight and tingling." The only satisfactory explanation which can be given of this fact is, that thought produces vascular changes in the finger which produces the sensation of weight and throbbing. Dr. Tuke reports the following: "Mr. Braid

requested four gentlemen in good health, and from forty to fifty years of age, to lay their arms on a table, with the palms of their hands upward. Each was to look at the palm of his hand for a few minutes, with fixed attention, and watch the result. Entire silence was enjoined. What happened? In about five minutes, the first, one of the present members of the Royal Academy, stated that he felt a sensation of great cold in the hand; another, who is a very brilliant author, said that for some time he thought nothing was going to happen, but at last a darting, pricking sensation took place from the palm of the hand, as if electric sparks were being drawn from it; the third gentleman, lately mayor of a large borough, said that he felt a very uncomfortable sensation of heat come over his hand; the fourth, secretary of an important association, had become rigidly cataleptic, his arm being firmly fixed to the table."

Were the minds or bodies of these four men in different conditions, or were they at the time occupied with different ideas, which caused the difference in the phenomenal results?

When a boy, the writer, as ordered by a physician, took a dose of calomel and jalap, the nausea of which, he thought at the time, was worse than death itself. The medicine in a few hours spent its force upon the body, but for years the nausea returned whenever the occasion was recalled. Such an experience would surprise us if it were not so common.

A steady gaze upon the setting sun as it is passing through a heavy misty atmosphere makes a strong impression upon the sense of seeing; so much so, that, if we turn away, and look in another direction, the sun, in slightly diminished splendor, is still there. On the same principle, if the Mind is intensely directed to any object which has been or may be an object of sight, the visual sense is often so affected that whatever has thus completely filled the Mind's eye also appears to be present to the bodily sense. Luther saw more of satanic than of human agency in the persecutions he suffered on his return from Worms, and for the moment he believed that the wicked one had entered his room. He hurled his inkstand at the apparition, and the stains of the ink are said to remain on the wall of his room to this day. At another time, the Saviour, with the wounds of the crucifixion, suddenly appeared to him in his room. These phenomena were simply the results of the intense action of an idea upon the optic nerve.

Walter Scott, after having spent some hours in reading the life and journal of Lord Byron, with his mind filled with the minutest conception of his appearance and character, passed out into the hall of his mansion, and there, apparently, met the noble poet. Scott's presence of mind, or self-possession, did not forsake him. He remembered that his friend had been dead for some years, and his philosophy taught him that what appeared to his eyes as the living man was only

the result of the vivid conceptions he had formed of him in his mind by reading his life and journal. The discovery of the spectrum of the sun made a deep impression upon the mind of Sir Isaac Newton. For some months after that event, in the dark, and anywhere, by fixing his attention upon the scene, it would appear as vividly to him as when he looked at the sun itself. We see in this nothing but the power of an idea upon the sense of sight. Thousands of people, after having spent a week at a camp-meeting, have, for some days after returning home, heard the voice of prayer, praise, and song. These services, in idea and feeling, had become so intense that their properties had been, to a slight extent, imparted to the sense of hearing.

Many a good dinner has been spoiled, so far as the pleasures of *taste* were concerned, by an animated table-talk, interesting the Mind and drawing the attention away from the carefully prepared viands and luxuries of the table. Thus thoughts in the Mind may modify, neutralize, or intensify the action of the nerves and sensorium.

In the early history of Ohio, while the wild Indians were yet disputing for the lordship of that beautiful country, Brady made his celebrated leap across the Cuyahoga River, at Kent, a distance of twenty-two feet, and thus escaped from the scalping-knife of his savage pursuers. In giving an account of what seemed to him to be a miracle, he said the Senecas

were after him but a few rods in his rear, and that their yells of triumph rent the air. As, suddenly and unexpectedly, he came to the river a sort of inspiration came upon him, and instantly he resolved to clear the stream at a bound, and, still clinging to his gun and hatchet, he did it. It was with him a matter of life or death, and, if death, it was to be by slow torture. Mind awoke to almost superhuman power; every nerve and muscle felt the effect, and the body was sent through the air and set down on the farther shore. The Indians regarded the leap as wonderful, and despaired the luxury of consuming the brave pioneer by a slow fire.

Dr. Tuke furnishes the following illustration of the physical agitation which may accompany mental labor: "Sir Philip Francis," supposed to be Junius, "would pace rapidly forward, as if to pursue a thought. He would then suddenly turn short round, draw himself up to his full length, and, with a sweep of the arm, evolve some epigrammatic sentence or well-rounded quotation. Even his own family, habituated as they were to these sudden interruptions of the measured tread with which he loved to pace up and down the utmost length that a small suite of rooms would allow him, were sometimes startled by the vehemence of the outbreak, and strangers were absolutely electrified."

The mental battery not only shook the physical structure of Philip Francis, but the throne of England,

no doubt, during some years, felt successive shocks that came upon it from the same source in the form of "Junius's Letters."

Dr. Ferrier, in his "Medical Histories and Reflections," gives the following account of a man and wife who had been bitten by a dog they supposed to be mad. The woman thought herself well, but the man—a meager hypochondriacal subject—fancied that he had uneasiness in his throat, and that he could hardly swallow any thing. When he first applied to me, a medical friend, who was present, asked him whether he had any sensation of heat at the pit of his stomach. He answered in the negative, doubtfully; but next day I found him in bed complaining of heat at the pit of his stomach, difficulty of swallowing, tremors, and confusions in his head. He continued to persuade himself that he was ill of rabies, and confined himself to bed, expecting death for nearly a fortnight. At last I remarked to him, that persons who were attacked with rabies never survived more than six days; this drew him out of bed, and he began to walk about. By a little indulgence of his fears this might have been converted into a very clear case of hydrophobia, and the patient would probably have died."

A farmer, at work in his field, found that his vest was, by many sizes, too large for him, and not thinking that the strap on the back was broken, was smitten with the idea that he had become poor, and that he

must be sick; so he started immediately for the house. He barely succeeded in entering the door, and with sighs and groans reported his condition to his wife. Pulling forward his vest, that his wife might see how he had shrunk away, he requested that the doctor be sent for at once. The good wife instantly discovered his mistake, and the removal of the idea of sickness cured the man.

Prof. Johnson, well-known to the writer, while using an ax supposed he had cut his foot, and a piece of red flannel near his foot he mistook for blood. He came into his house limping, rubbing his hands in deep distress, and ordered the doctor sent for. Not a drop of blood had been drawn; his trouble was all the work of an idea. Such is the power which an idea in the Mind has over the body.

Dr. Tuke states that "Actual paralysis from hard and prolonged intellectual labor should be noted as a not infrequent result. The intellect acts upon the heart and non-striated muscles with a power similar to that which it exercises over the voluntary or striated muscles, causing regular movements, spasm, and paralysis."

Dr. Graitolet relates the following: "A medical student in Paris, on being initiated into the mysterious rites of a Masonic society, was subjected to the following process: His eyes were bandaged, a ligature bound round his arm, and the usual preparations made to bleed him. When a pretense of opening a

vein was made, a stream of water was spurted into a bowl, the sound of which resembled that of the flow of blood which the student was anticipating. The consequence was, that in a few moments he became pale, and before long, fainted away."

Dr. Tuke relates the case of a man who was sentenced to be bled to death: "He was blindfolded, the sham operation of bleeding was performed, and water allowed to run down his arm in order to convey the impression of bleeding. Thinking he was about to die, he did actually die." The idea in the Mind, though false, had destroyed the physical Life.

Once, in Paris, a criminal's head had been laid upon the block, but before the ax fell a reprieve came, but it was too late. The dread of death had arrested the action of the heart, and life was found to be extinct.

Dr. Liebig says: "Every conception, every mental affection, is followed by changes in the chemical nature of the secreted fluids; and every thought, every sensation is accompanied by a change in the composition of the substance of the brain." Such is the most hidden influence of the Mind over the Body.

The thought of occupying a prominent position before the public will almost invariably produce bodily sensations, especially among young people. A young clergyman expects in a few days to perform, for the first time, in the presence of a brilliant company, the marriage ceremony. As often as the idea

of the wedding comes to his mind an indescribable sensation seizes the pit of his stomach, somewhat like nausea or uneasiness, which visibly agitates the body. This emotion, having its origin in the Mind, may be called the epigastric feeling, as its effects are so fully realized in the abdominal region. Perhaps there is no sensation more common to the human family than this, and in some instances the feeling is so intense that it produces complete qualm, or Milton's "qualms of heart-sick agony."

The power of Mind over Body was never more clearly and correctly conceived than by Shakespeare:

"The thought whereof
Doth, like a poisonous mineral, gnaw my inwards."

Again :

"I feel such sharp dissension in my breast—
Such fierce alarums both of hope and fear,
As I am sick with working of my thoughts."

Painful emotions tend to produce chilliness and coldness of the extremities, whereas joyful mental excitement will sometimes put the whole body in a state of perspiration.

Dr. Darwin relates the following as quoted by Dr. Tuke: "A young farmer in Warwickshire finding his hedge broken, and the sticks carried away during a frosty season, determined to watch for the thief. He lay many cold nights under a hay-stack, and at length an old woman, like a witch in a play, approached and began to pull up the hedge; he waited

till she had pulled up her bundle of sticks, and was carrying them off, that he might convict her of the theft, and then, springing from his concealment, he seized his prey with violent threats. After some altercation, in which her load fell on the ground, she kneeled upon the bundle of sticks, and raising her arms to heaven beneath the bright moon, then at the full, spoke to the farmer, already shivering with cold : ‘Heaven grant that thou never mayest know again the blessing to be warm !’ He complained of cold the next day, and wore an upper-coat, and in a few days another, and in a fortnight took to his bed, always saying nothing made him warm ; he covered himself with very many blankets, and had a screen over his face as he lay ; and from this one insane idea he kept his bed above twenty years, for fear of the cold air, till at length he died.”

The suggestion of the idea of food, or of water, tea, coffee, and in some cases wine, produces the sensation of appetite ; but, on the other hand, when the Mind is much occupied, we may pass one or two meals—as the writer has done—with feeling in the least a sense of hunger, or even thinking of it.

It is generally believed that the emotional part of our nature exerts a stronger and more general influence upon our bodies than the Will or the Intellect. The thought is conceived by the Intellect ; its force is communicated to the emotions, and many, and often contrary, feelings may be aroused to action, and in the

result every nerve and muscle in the system may be affected.

Dr. Tuke says: "Anger or rage contracts the masseters, inflates the nostrils, furrows the forehead, exposes and rolls the eye-balls, clenches the fists, and induces a violent action and more or less rigidity of the muscles generally; it usually impels the body forward, while fear impels it backward."

Sir Charles Bell gives the following description of the power which the feeling of great terror may produce upon many physical organisms: "There is a spasm in his breast—he cannot breathe freely; the chest is elevated, the muscles of his neck and shoulders are in action, his breathing is short and rapid; there is a gasping and a convulsive motion of his lips, a tremor on his hollow cheek, a gulping and catching of his throat; and why does his heart knock at his ribs while yet there is no force of circulation? for his lips and cheeks are ashy pale."

The Mind, filled with the idea of danger, excites the emotion of fear to the pitch of terror, and this chain of causes produces the physical phenomena Sir Charles describes. As an illustration of the power of mental and emotional action to rupture the cutaneous capillaries and force the blood to the surface, so as to occasion bloody sweat, Dr. Tuke relates the following case: "A sailor, aged thirty, was so alarmed by a storm that he not only fell on the deck speechless, but on going to him Paulini observed large drops of

perspiration of a bright red color on his face. At first he imagined that the blood came from his nose, or that the man had injured himself by falling, but on wiping off the red drops from the face he was astonished to see fresh ones start up in their place. The colored perspiration oozed out from different parts of the forehead, cheeks, and chin, but it was not confined to these parts, for on opening his dress he found it formed on the neck and chest. On wiping and carefully examining the skin he distinctly observed the red fluid exuding from the orifices of the sudoriparous ducts. So deeply stained was the fluid that on taking hold of the handkerchief with which it was wiped off, the fingers were made quite bloody. As the bloody perspiration ceased the man's speech returned."

This case may be thus analyzed: The Mind, through the senses, conceived that a tempest was at hand; the fancy, aided by imagination, pictured its effects upon the ocean, and especially upon the vessel, and a grave in the deep seemed to be inevitable; fears were terribly aroused; hope, in agony, gave way to despair, and thus every power of the Mind was roused to action, and its reaction upon the body produced the bloody sweat. But it is useless further to multiply facts to prove and illustrate the power the Mind has over the Body. To exhaust the subject would be to write the whole story of human Life. The subject is important, and many volumes have been written upon

it, and every day of human experience affords matter for volumes more.

Many learned attempts have been made to ascertain just how nerves, muscles, tissues, the blood, lungs, heart, and other physical organs are influenced by the action of the Mind; but on these subjects physiologists are not able to agree. In our argument the facts of the case are matters of supreme importance—the *modus operandi* is of no consequence. The progress of learning may yet crystallize into a science which may be called psycho-physics, but we are a great way from it now.

That the reader may the more clearly see, not only that the Mind is not the Body, nor any part of it, but that, like another substance, it acts upon it, we will catalogue, for his benefit, many of the more prominent influences it exerts upon the Body, taking Dr. Tuke as our principal guide.

I begin with the Intellect. Excess of study may produce epilepsy, diabetes, nervous headache, hemiplegia, jaundice, dyspepsia, and general nervous derangement. Close attention may result in visual hallucination, ocular spectrum, illusions, sensations of cold, sensations of heat, darting and pricking sensations, cataleptic rigidity, stigmata, purging, and nervous sleep. Association of ideas may produce nausea, ocular spectrum, epilepsy, paralysis, vomiting, and purging. Imaginative expectation may produce visual auditory and olfactory hallucinations, muscular move-

ments, epilepsy, nervous disturbances, syncope, vomiting, sweating, and death.

Sympathy produces acute pain, convulsions, spasms, inflammation of glands, urinary pains, and inflammation of the lips.

Various forms of joy may result in facial expressions and gestures, syncope, effusion of blood into the pericardium, apoplexy, heart diseases, and death.

Grief produces equally marked effects upon the Body, such as facial expressions and gestures, epilepsy, paralysis, chorea, spasms, tetanus, jaundice, phthisis, gangrene, blanching of the hair, gastric disease, arrest of lachrymal secretion, and death.

Hope and faith find their physical expressions in the face and eyes, in a general stimulating influence, cure of paralysis, cure of ague, and relief of rheumatic pains.

Despair, self-esteem, humility, and courage, all have their facial and other expressions. The emotions of fear, fright, terror, and anxiety produce physical expressions so marked that the Body becomes a correct index of the condition of the Mind. In the quivering of muscles, trembling of knees, convulsions, cold or excessive perspiration, loss of speech, bloody perspiration, and death, the Mind traces ideas and emotions upon the Body as if it were a parchment. These physical expressions are again effaced, or modified, or withdrawn, as the Mind gives its attention to other subjects.

CHAPTER VII.

THE ATTEMPTS MADE TO FRAME A DEFINITION OF LIFE.

"You cannot satisfy the human Mind in its demand for logical continuity between molecular processes and the phenomena of consciousness. This is a rock on which Materialism must inevitably split whenever it pretends to be a complete philosophy of the human understanding."—Prof. JOHN TYNDALL.

§ 1. The Boldness of modern Philosophic Thought.

REPEATED and brilliant successes have encouraged the human Mind to undertake the solution of any problem which the phenomena of nature may present. The spirit of inquiry is every-where, and the most abstruse subjects are discussed, not only in literary institutions and among scholars, but in counting-rooms, in the social circle, among all classes, and in all the walks of life.

The professed scientists of this age are men of character, of rare industry, and richly endowed with intellect and learning. They might be grouped into various classes, as Theists, Idealists, Pantheists, Agnostics, Materialists, and Atheists. They all shade off more or less into each other, and the terms Vitalist and Materialist will, perhaps, embrace all the schools of modern thought. The Vitalist and Materialist occupy opposite sides of the circle—they are as wide

apart as can be; and between them there can never be any thing but the sharpest antagonism.

Materialism is an ancient school in science; one which at long intervals, during the last twenty-five centuries—from Democritus to the present day—has had its spasms of activity, each followed by a deadly relapse. At present, more than ever before, Materialists are confident and dogmatic, as if they felt an assurance of victory. Our greatly increased facilities for prosecuting physical investigations have intensified the enthusiasm of all classes in the studies of geology, chemistry, and astronomy; and when a strong Mind becomes devoted to any great subject as a life-study, it becomes to him the world in which he lives, and moves, and has his being. His stand-point is an intellectual center, around which all things else revolve in diminished proportions. The world each one of us lives in is but the correlate of himself—a one-sided man, a one-sided world, a narrow man, a narrow world, and a full-orbed man, a full-orbed world. What we search for, what we feel, what supremely interests us, we can find and establish to our satisfaction, and the conclusions of a single Mind, pursuing a solitary line of thought, can seldom be trusted as truth. The subjective logician, as Bain or Mill, may give us the frame-work of argument, and the poet may delight us with the creations of his imagination; but truth, as a grand whole, is not to be found in such narrow channels.

But in our studies nothing so wearies us and tries our patience as the narrowness and the exclusiveness of modern Materialism. The argument is a process of excision and extinction, as if to establish Materialism its advocates would blot out every thing except a stone, and then, pointing to that, exclaim, "Behold in miniature the universe!"

It is not to be deprecated that all schools of thought are making nature's volume the subject of earnest study, and that the age is making positive progress in various kinds of knowledge; but we regret that such is the eagerness of the investigators to add each his quota to the aggregate result that time is not taken for more elaborate investigations. Unwisely, vital and psychological studies have been carried into the realm of Matter for solution by Induction, and the labors of another generation will be required to balance the excesses, the one-sidedness, and the distortions of this.

It is not very marvelous that men have accredited to Matter whatever they have found associated with it. One of Job's friends recognized his own body as a "house of clay," but that was a long time ago. The modern scientist, in his superior wisdom, sees, or thinks he sees, that in his case clay, that is, a Body, because it has worked itself into bone, muscles, nerves, organs of various kinds, then lived, also became conscious of existence; and though this clay differs only in form, not essence, from what it was at first, in various

ways it manifests vital and mental phenomena. Joy, grief, and most of the emotions have their physical expression, and why may not common dirt so pack itself together that it will express all that ever appears upon the human face or flashes from the human eye? Man, then, may be regarded, not as a spirit dwelling in a house of clay, but simply as a structure of self-organized dirt and nothing more. This sublime conclusion, perhaps, might be confirmed by a quotation from Scripture: "Dust thou art, and unto dust shalt thou return!"

§ 2. *The Stronghold of Materialism.*

To strengthen this view of the nature of man it is alleged that in sleep the brain parts with a portion of its blood; and, as a consequence of this loss of stimulating force, there is a cessation of thought and consciousness; and, further, when injuries are inflicted upon the brain mental operations, to all appearance, either cease, or, like the brain, become deranged; hence the conclusion is drawn that the brain Matter thinks, wills, and feels. Changes in the brain mass affect the Mind or mental operations, as the manipulating of the keys of an organ affects the music. Mental and cerebral actions appear to be in harmony —the one cause, the other effect.

But the stronghold of Materialism is found in the fact that we have no knowledge of Mind separate from the Body. Professor Ferrier says:

“Matter is already in the field as an acknowledged entity—this both parties admit. Mind, considered as an independent entity, is not so unmistakably in the field. Therefore, as entities are not to be multiplied without necessity, we are not entitled to postulate a new cause so long as it is possible to account for the phenomena by a cause already in existence; which possibility has never yet been disproved.”

On the above let us consider:

1. That the assumption that Matter, as an entity, is in the field of observation is not true. We fully believe in the entity of the atomic elements, as we have shown in chapter first; but such is their infinite smallness that they are not in the field of observation by more than two thousand diameters. Matter, as an entity, is no more a subject of sensation or observation than a Spirit or a Life. Matter, as it appears in the heterogeneous masses, is not Matter as an entity. The nature or essence of Matter is as inscrutable as the essence of Mind.

2. It is neither logical nor fair to call upon Vitalists to prove a negative. When Prof. Ferrier affirms that Life and Mind are the products of mere Matter, it is our right to demand the proof, and his duty to supply it. He might assert that the moon is the source of Life, and demand that we go there, and by actual observation, demonstrate the contrary. Materialists have been pressed hard, again and again, for proof of the truth of their dogmatic assertions, but to

this hour the main article of their creed—that Matter can think—stands alone, unsupported by a fact of nature.

3. We may, with absolute truth, retort, that there is a Something in the field whose phenomena were never known to spring from mere Matter, and that *organic* Matter was never in the field, except as the product of a pre-existing vital agent.

4. If Prof. Ferrier bases his remark upon something occult in Matter, or upon a kind of Matter unknown to Chemistry, then we can only reply that he has carried the question outside the range of all knowledge, and his dogmatisms are of no value. We can deal only with the Matter known to the chemist, and we have not the slightest proof that any other kind exists.

5. All that can be urged on the basis of the supposititious ether, with which the scientific fancy fills the interstellar spaces, in proof that there is a kind of Matter that can generate life, or construct organic bodies, even a cell, or spin a hair, as argument is of no value whatever. To urge such a consideration, is to raise a signal of distress on the part of an advocate. If Matter were a changeable substance; if alternately it were losing old properties and gaining new ones, we would not be able to decide upon what it had been, or upon what it will become. But the question is not embarrassed by any such consideration. The Mind that can grasp the idea of a pure unitary substance perceives, *a priori*, that Matter is unchange-

able. As spontaneous generation is not now, as our greatest Materialists confess, a property of Matter, we have not the least reason to believe that it ever was or ever will be. Consequently every organism, from the cell upward, is proof positive that a vital agent is in the field, and conspicuously at work.

§ 3. *Materialists not Content with their Argument.*

Materialism encounters its greatest difficulties to progress in Matter itself. In some respects it is incurably wanting, and in others it presents unmanageable excesses. Hence Prof. Tyndall says: "Let us radically change our notions of Matter." Well, suppose we so change them as to invest Matter with all vital and mental phenomena, do we not, thereby, subtilize it into Spirit, and then simply call Vital Phenomena by another name. This unrest and anxiety, betrayed by Mr. Tyndall, is common to the Materialistic school of science. Mr. Darwin went down to the grave mourning that the "missing links" in the chain of his philosophy could not be found, and Herbert Spencer feels deeply the fact that his evolution theory is wholly dependent upon the once hoped-for spontaneous generation for its strength. He is aware of this fatal deficiency, and feels compelled to look upon his gigantic but tottering arch as without a key-stone. These eager minds, effervescing with the excitements of new discovery, have been thrown off their balance, and they have rushed to unauthorized conclusions,

which will make it the duty of another generation to reconstruct their philosophy and place it upon a basis of demonstrated fact.

Notwithstanding Mr. Tyndall's rank Materialism, we take pleasure in acknowledging that he has been of service to the cause of Vital Philosophy, and his honest, wholesome words have done much to keep his less careful compaers within the bounds of propriety. The reckless extravagance of Alexander Bain finds its antidote in the superior intelligence and cooler candor of Tyndall. The most valuable paragraph he ever wrote is the following, on what we know and do not know of the connection which subsists between the brain and mental operations. Though often quoted, this discussion would not be complete without it :

“ Granted that a definite thought and a definite molecular action in the brain occur simultaneously, we do not possess the intellectual organ, nor the rudiments of an organ, which would enable us to pass, by a process of reasoning, from the one phenomenon to the other. They appear together, but we do not know why. Were our minds and senses so expanded, strengthened, and illuminated as to enable us to see and feel the very molecules of the brain ; were we capable of following all their motions, all their groupings, all their electric discharges—if such there be—and were we intimately acquainted with the corresponding states of thought and feeling, we should

be as far as ever from the solution of the problem: How are these physical processes connected with the facts of consciousness? The chasm between the two classes of phenomena is, intellectually, impassable. Let the consciousness of love, for example, be associated with a right-hand spiral motion of the molecules of the brain, and the consciousness of hate with a left-handed spiral motion, we should then know, when we love, that the motion is in one direction, and when we hate, that the motion is in the other; but the *why* would still remain unanswered."

This confession of Mr. Tyndall makes it impossible for us to hope that the study of Physiology will ever aid us in understanding our mental structure. Were our knowledge of Body and Mind, as separate entities, perfect, their connection would still be a mystery; and, what is still more important, a perfect knowledge of man's physical structure would not suggest to our reasoning powers how it is possible that thought, will, and emotion can ever exist in connection with such an organism. There is no more apparent causal connection between brain-matter and Mind than between a block and Mind. The only ground that reason can calmly rest upon is this: Mind is one thing, Matter another, and an impassable chasm yawns between them. This is not mere assertion. In the study of Biological questions Spencer, Bain, Lewes, and, more than all others, Dr. Lionel Beale, have displayed a vast knowledge of Chemistry, Anatomy, and Physiology,

especially in regard to nerve-tissue, molecular changes, cells, bioplasts, affinities, electrodes, and whatever pertains to the physical organism; but all this knowledge, comprehensive as it is, has not modified an iota our conceptions of Life and Mind, or their relation to the Body.

§ 4. *Vital Writers have Failed to Help their Cause.*

But another class of scientists, of equal ability and learning, is in the field. It holds, with Aristotle, that "the proper study of mankind is man." The study of the universe presupposes the knowledge of ourselves—our capacity—and correlations. But there is danger that a clearly-apprehended truth may dazzle rather than enlighten the Mind. Standing where we now do, Bishop Berkeley, David Hume, and other great men have made egregious mistakes. They so long and so fully interpreted objective phenomena in the light of their own subjective consciousness, that they were led to deny that we know any thing besides our own ideas and impressions. An idealistic school of philosophy arose which has done incalculable mischief in discrediting man's faculties and in sapping the foundation of all knowledge. If our belief in the reality of an external world is an illusion—if the savage, the peasant, and the philosopher alike are the victims of a stupendous fraud—may not the Messiah be set down as a myth, and his resurrection as a cheat? Volumes and volumes of learned nonsense

have been given to the world to prove that the earth, sun, and stars are not substance, but appearances, where nothing appears, and appears to nothing; that the physical sensations of hardness, weight, figure, density, and coldness, supported by the sense of seeing, were not proof of the existence of substance, and that the pain of a bee-sting was nothing but an idea. All we know as reality, they teach, is the certainty of ideas and impressions.

Thus the Matter-intoxicated scientist denies the existence of Life and Mind, and the Mind-intoxicated scientist denies the existence of a world of Matter. And so the parties stagger on, both, leaving the highway of knowledge, fall into the ditch, one on the one side, and the other on the other side. It is the sober and evenly balanced Mind, which keeps steadily in view the whole circle of truth, that travels safely the royal road that leads to certain results. Huxley and Bain try to combine the two schools of thought by making Matter and Mind a unit of substance; and the mongrel thus formed is not any thing which can be recognized in nature.

If we keep steadily in view Mind and Matter, as separate entities—note carefully their relations and do not confound their phenomena—clear conceptions, approved by consciousness and susceptible of proof, will reward us for our labor. The one line of thought cannot be understood by the study of the other. The attention which our physiologists have

given to the study of brain Matter for the purpose of understanding Mind has been labor lost, and all attempts to chemically analyze organisms for the purpose of detecting life, or throwing light upon the science of Mind, is the extreme of absurdity ; yet scientists speak learnedly of nerve tissues and molecular changes, and draw conclusions, as if these subjects were understood or had any bearing upon the main question. That there is any connection between thought and molecular changes is a matter of pure conjecture. Prof. Tyndall's frank and honest statement in regard to this matter, already quoted, places the subject outside the pale of debate.

Materialists have been required to endure severe hardships and suffer many disappointments. For many years they clung to the theory of spontaneous generation, as to a forlorn hope. All the resources of the laboratory have been taxed to their utmost to aid nature in granting to the weary toilers this sorely needed boon. Pasteur of France ; Helmholtz, of Germany ; and Bastian, of England, besides hundreds of lesser lights, have, after many trials, abandoned the idea that Life can come only from antecedent Life. That peculiar phenomena exist, called Vital, cannot be denied, and Materialists have felt the necessity of working out a definition of Life which would recognize it simply as an affection of Matter. To do this has been a difficult task, and the skill of many men, and the capacity of many languages, have been

taxed to their utmost in the attempts which have been made. It is not likely that any one ever attempted to define a triangle in the terms used to describe a circle; but such task would be child's play compared to the labor of giving a clear conception of Vital phenomena in terms of Matter. Yet the necessities of the case have demanded that Materialists face this difficulty and undertake to overcome it. The importance of such effort is apparent, for if Life can be defined as an affection of Matter, it is disposed of as a distinct entity. No one point in this controversy, since the abandonment of the hope of realizing spontaneous generation, has received so much attention as this. By the help of the imagination a satisfactory conception of Life could be created or invented, but language stubbornly refused to give it form and expression; hence the wriggling and twisting it has endured is amazing.

§ 5. Materialistic Attempts to frame a Definition of Life.

Schelling's definition is in these words: "Life is the tendency to individuation." This definition contains a germ of truth, and is the most acceptable deliverance Materialism, or, perhaps, I should say, German Idealism, has produced. Had Schelling said: The vitality displayed on the globe is made up of different entities, which, in their development, produce individual organic structures, his definition would be in harmony with what we have repeatedly

stated. But at best it is an indefinite and bare-bone definition—"a tendency to individuation"—a tendency of what, may we inquire? Is Life a substance, whose "tendency" is to build up individual plants and animals? or is there, in some kinds of Matter, a property whose tendency is to work itself into individual organic bodies? This definition amounts to nothing, because we are unable to determine the source and cause of the "tendency." But indefinite and equivocal as it is, it lies too near the truth to be accepted by Materialists, and they have thrown it out as worthless.

Richerand's definition is as follows: "Life is a collection of phenomena which succeed each other during a limited time in an organized body."

"Phenomena" are effects; pray what is their cause? By what means was the body organized in which the phenomena were found? And why have we such an infinite variety of phenomena in different organic bodies? In passing from the moss to the cedar and from the worm to man, whole kingdoms are brought into view. As Life is in some way associated with all these phenomena, a definition of it, to be in the least intelligible, must specifically point out the connection between them. The phenomena of an organic body embrace the entire body; there is no one part or nucleus in which they inhere. The definition, then, amounts to this: Life is the phenomena of an organic body, and amounts to nothing.

If the organism is Life, then the definition should be shortened, and the term used as synonymous with Matter. Spencer objects to this definition, because it applies equally well to the slow decay of a dead body. Think of it; a renowned scientist formally publishes a definition of Life which another renowned scientist, of the same school, says applies with equal force to the decay of the dead. Difficulties equally great are encountered by the whole school in its attempts to frame a definition in terms of Matter.

De Blainville tries his hand at a definition of Life with the following result: "Life is the twofold internal movement of composition and decomposition at once general and continuous." The cause of "composition and decomposition" is not stated, hence the definition contains no complete idea, and is of no value. We must infer that the "composition and decomposition" take place in an organic body, and we are to conceive of Life as consisting of the changes—the coming and going—of atoms and molecules. The definition might, then, stand thus: Life is the dance and the clash of atoms; but when we ask, What causes the clash of the atoms? there comes no answer, and the definition is of no value. Mr. Herbert Spencer, who seems to have taken charge of the task of framing a definition of Life, rejects the effort of De Blainville, on the ground that it applies as well to the action of a galvanic battery as to a living being. The study of these attempts at a definition of Life is

valuable, as we can see in them the low and narrow plane of ideas on which the discussion is conducted by Materialists.

Prof. Owen's carefully prepared definition of Life is as follows:

“Life is a center of intersusceptive assimilative force, capable of reproduction by spontaneous fusion.” If Life be a “force” it can have no independent existence. A force is an effect, which must have a cause not itself. What we want, then, is the cause of this “force;” but here, where we need light, the definition is a blank. If the definition read that Life is a self-centered substance, and the cause of organic bodies, it would contain a clear-cut idea; but as it is there is nothing of it but a clog of words.

G. H. Lewes proposed the following; but after a few years he saw its excesses and shortcomings, and withdrew it:

“Life is a series of definite and successive changes, both of structure and composition, which take place within an individual without destroying its identity.”

The admitted persistency of identity is what destroyed this definition for all schools of Evolutionists. Mr. Lewes made another attempt, as follows:

“Vital force is a symbol of the condition of the existence of organized Matter.”

He says, again, that “a mental process is only another aspect of a physical process.” Hardness is one “aspeet” of ice, coldness another; so Mind and Life

are but different "aspects" of Matter. But it is clear that this author had no settled views on this subject, for, in another place, he not only denies that Life is any thing real, but he emphatically says it should not be called a force. On the whole, his labors at framing a definition of Life result in conceiving it as an "aspect" of Matter. "Only that, and nothing more."

Bichart says:

"Life is the sum of the faculties which resist death." That is, where there is Life death has not come. How luminous this definition! If it signifies any thing, it means that Life and the organism are one—that is, that Life, *per se*, is nonentity.

Prof. Alexander Bain was an acute and recklessly bold advocate of the Materialistic philosophy. We have seen the statement somewhere, that he wrote on the subject by request, and reluctantly. In some instances his language is so broad that it seems he was willing to bring disgust upon the whole subject. He labors long to wring out of language some form of expression which would identify Matter and Mind as one substance. In the end, he concludes he can do no better than call Mind a "state" of Matter. When our eyes are open we are in a seeing state, and Matter, in a certain undefined and inconceivable condition, is in a thinking "state." He says: "We are entitled to say that the same being is, by alternate fits, object and subject under extended and under unextended consciousness." Such is Materialism, and such is the

acutest conception it has given the world of Life and Mind. We have first a new idea of Matter. It is subject to alternate “fits” of consciousness and unconsciousness, and consciousness is but an extension of Matter, as one of its tentacles ; thought and will are other tentacles. Matter, in a “fit” of extension, is Mind ; take from Matter this power of self-extension, and the mental part ceases to be. Cure Matter of its “fits,” and Mind is destroyed. Such are the disgusting straits to which Materialists are reduced in their attempts to frame a definition of Life. Where all others have confessedly failed, Mr. Herbert Spencer enters the field as the special champion of a definition of Life. He engages in the struggle after the most ample preparations, and the result is a complicated piece of mechanism, which at last mostly crumbles to pieces at his own touch. He commences by assuming that “assimilation is a form of bodily life”—the truth is, it is not a form, but a result, of Life. Assimilation is one of the processes and steps by which the waste and wear of an organism is repaired and built up. He then instances “reasoning” as an “example of that kind of Life known as intelligence.” The fact is, reasoning is not a kind of Life, but it is one of the faculties or exercises of the Intellect. In chapter four we have drawn a sharp distinction between Life and Mind. With what he calls these two extremes of vital phenomena before him, he sets out in search of those properties which are common to both, with

the hope that these will crystallize into an intelligent definition of Life. This second step in his argument is as fallacious as the first, for the idea that reasoning, in company with assimilation, can form life—its lower and higher extremes—is grossly absurd. As well might we say that assimilation is a part of intellect. Reasoning and assimilation are not common properties of any thing. The next step in this sublime argument is, that “Life consists of changes.” What it is that changes, whether Life or something else, we are not informed; hence, the word “changes” conveys no complete idea. We are left to infer that the “changes” which take place in an organism constitute its Life. But as this definition will apply to a thousand other things, as well as to living organisms, it means nothing specific and is pronounced by its author inadequate. Mr. Spencer then enlarges his definition and makes it a “series of changes.” But as such definition will apply to the moon, to the ocean, and to the seasons, it amounts to nothing. The “series of changes” he speaks of are, of course, to take place in Matter, as in the souring of milk and the churning of cream. Such definition will apply to the decay, as well as to the growth of vegetables. But the mountain labors again, with the following result: “Series of simultaneous changes.” His definition is growing, but it is yet in its feeble infancy. Another enlargement follows in quick succession, and we have: “Life consists of simultaneous

and successive changes.” But this language does not convey a complete idea of any thing, and is abandoned by its author as worthless. But Mr. Herbert Spencer is not the man to yield in a contest where words are his weapons of war. After another page of discussion, in which the cerebrum, the viscera, the ocean, mechanics, steam-engines, clouds, their changes of position, color, form, density, temperature, electric states, and other material objects and imagery are invoked to lend their inspiration, we are favored with the following triumphant deliverance: “Life is a combination of heterogeneous changes, both continuous and successive.” In commenting on this supreme effort of his genius, Mr. Spencer says: “Nevertheless, answering, though it does, so many requirements, this definition is essentially defective. It does not convey a complete idea of the thing contemplated.” He makes one further effort, and then overthrows the whole structure for the following: “Life is the continuous adjustment of internal relations to external conditions.” G. H. Lewes says, “The above is the nearest approach to a definition that has yet been effected.” When, then, will the definition come? Never! A burning lamp has internal relations to external conditions—the oil within to the air without. There is a continuous adjustment of the one to the other. In dressing myself according to the weather, I adjust my internal to the external. Eating a hearty dinner, that I may have

strength to do a hard job of work, embraces the same principle. Will Mr. Spencer claim that these are vital processes? In every case the adjusting force must be vital; if not, the definition is worthless. But what it is that generates the peculiar vital force which "adjusts" the "internal" to the "external," as distinguished from material force, is a question which even Mr. Spencer does not attempt to answer.

"Life is a wave," says Prof. Tyndall, "which in no two consecutive moments is composed of the same particles." Democritus, 460 B. C., expressed substantially the same views. He said: "The soul consists of fine, round, smooth atoms; like those of fire, they interpenetrate the whole body, and in their motion the phenomena of life arises."

I am not aware that Prof. Huxley has attempted a definition of Life where so many have failed. His views we have, however, in another form, and not less explicit. Life and thought are the outcome of Protoplasm as their basis. Matter is the cause; living, thinking, and feeling are properties or results. The same substance lies at the foundation of all the myriad forms of living creatures which characterize the vital world. Why one plant should differ from another, or why plants should differ from animals, is wholly unknown to science. Ought Materialistic Biology to be ranked as a science with the cause of the differences in the organic world left unexplained? In that unknown cause may be locked up a factor which, if

known, would render obsolete large volumes of loose generalizing which of late have been poured upon the world. That there is a cause of the endless differentiations we witness among living things and living creatures, cannot be denied. In regard to it Materialists confess their ignorance; Vitalists recognize the agency of different kinds of Life. If they are mistaken, what other explanation is possible?

From the above quotations from the most celebrated Materialists of the age, is it not manifest that an intelligent definition of Life cannot be framed on a Materialistic hypothesis? And may we not see in that fact positive proof that the Materialistic conception of Life is a distortion of the truth? Did ever, in the world's history, any set of learned men make an attempt to express a palpable fact of observation and so completely fail? Their shameful failure can be ascribed only to the fact that they have tried to clothe an absurdity with the garb of reason and with the simplicity of truth. And what more easy than a definition of Life *as* Life—that part of nature which causes Matter to assume organic forms? Where there is not an antecedent Life there can be no organism. The attempt to define Life in materialistic terms is made for the purpose of snuffing it out altogether and transferring vital phenomena to Matter. Mr. Tyndall says: "If we look at Matter, as defined for generations in our scientific text-books, the notion of conscious Life coming out of it cannot be formed by

the Mind." Good, both for Tyndall and for the truth! If new definitions of Matter and Life can be forced upon the acceptance of mankind two points of vast importance to Materialism will be carried. We have watched and waited in vain for the new definitions, but they do not come.

§ 6. *Attempts of Vitalists to Define Life.*

But what have Christian authors done to frame a definition of Life? The hypothesis of the existence of non-material substances contains a fundamental truth, in all forms of religion. The Bible, if true, is given from a living God, not to Matter, but to a vital universe; hence it is called the word of life. Vitalists should have been the first in the field, with a clear and full deliverance on this subject. But what are the facts? I know not an author who has touched this question and has not injured the cause he labored to subserve. Dr. Lionel Beale, a really learned Christian man, carelessly says: "Life is a question of physiology." If so, Life is nothing in itself; it is a product, an effect, and the outcome of organic Matter. After this concession of Dr. Beale, Materialists can ask for nothing more of him.

Dr. McCosh, the distinguished president of Princeton College, denies vitality to the animal and vegetable kingdoms. It follows, then, that Matter is capable of self-organization, and that crucial point granted to Materialism, we concede to it a complete victory.

If Matter can work itself into one organism, it can into another—even the human brain; and when the fact is demonstrated that Matter can work itself into the human brain, I shall not deny to it the power to think. McCosh concedes to Materialists far more than they claim they can prove. He regards Vitality as a force, and classes it with heat, affinity, and the other forces of Matter. He says: “The assertion that there is a vital principle capable of originating, unfolding, and perfecting all that is in the organism, may be quite as irreligious as the denial of a separate vital potency.” He speaks of plants and animals as formed out of “wisely-endowed and carefully-prepared Matter.” His description of wisely-endowed plant and animal Matter is unscientific—it is mere logomachy, and signifies nothing. Nature has no such Matter as he specifies. McCosh’s conceptions of vitality are all thoroughly Materialistic.

Bishop R. S. Foster, and some other American writers, follow closely in the wake of Dr. McCosh in their deliverances on this subject. They are, no doubt, right at heart; but I have to do only with their recorded teachings.

Prof. Guyot, of Princeton College, lately deceased, boldly ascribes vitality to Matter, and makes no distinction between Vital and Material forces.

Dr. T. L. Brunton, a man of great erudition, in his work entitled “Bible and Science,” speaks of Matter as having “developed into living protoplasm.”

Strange language to be used by a Christian philosopher! Mr. Tyndall, Materialist that he is, says "Life can come only from antecedent Life." Again: Brunton speaks of "the sun as the source of light and Life." The fact is, the sun is no more the source of Life than a rock or an iceberg. These passages are quoted to show how it is that our Christian philosophers have delivered us over to the tender mercies of Materialists. When the champions of religion thus lend their influence to the support of the new philosophy, is it strange that its advocates are confident of complete success?

After long waiting and watching, we are favored with a deliverance on this subject by Joseph Cook. As the first of a series of truths and principles, which he places at the base of Natural Theology, he gives us the following: "Life is one of the things or states of things in the universe." What does this statement amount to? Absolutely nothing. Should I present a hungry man a package, and say, "This contains either bread or a stone, a fish or a serpent," he would feel that I was mocking him; and when Mr. Cook solemnly asserts that Life either is or is not something, we see that the mountain has labored to no purpose. I may say, in regard to the Mind, that it is a spirit-substance, or that the Matter of the brain thinks, and such language, if it amounted to any thing, would strengthen Materialism. If "Life is one of the states of things," then Matter, in a certain

“state,” gives forth Vital phenomena, and Life is only, as Materialists claim, a transient resultant. Nothing more can be asked of Mr. Cook, for the surrender he makes is complete.

Some years ago Laurens P. Hickok, D.D. LL.D. published a work on Empirical Psychology, and two years since the book was revised and republished with the aid of Julius H. Seelye, D.D. LL.D., president of Amherst College. From these great names, heavily buttressed with titles, keen intellectual penetration might have been expected, and the solid foundation laid for a vital philosophy; but, in fact, they play into the hands of the Materialists as follows: “Matter is found *instinct* with life [italic theirs], and in the vegetable kingdom this is all we can say of its intrinsic mode of operation.” “Again: “The shortest definition of Life is, the capacity to give spontaneity to Matter through the medium of heat.” Now we submit that spontaneity cannot be given to any thing, for the word implies without constraint, or external force, and the expression is a solecism. Whatever does not proceed from inherent internal energy is not spontaneous action. If Matter is “instinct” with Life, and spontaneously builds itself into organic bodies, then Materialism is the true interpretation of nature. The expression “instinct” with Life is further explained by the term “capability.” Once more: “The spontaneity of Life only awaits the required conditions; the first of which is, the

ned to get the wanted gravitating Matter which is promiscuously lying about." Thus according to the action of chemical and natural law, physical and chemical, organic bodies are formed of Matter instinct with Life. Ranker Materialism was never taught by Maudsley, Lewes, or any other advocate of the New Philosophy. Huxley and Tyndall would laugh at such doctrine, not only because it is so utterly unscientific, but because the parties with child-like innocence surrender every thing that is in controversy.

Christian philosophers have failed in their attempts to define Life, or say any thing of value on the question of Vitality, because they have regarded it from the stand-point of Matter.

It will seem presumptuous in me to try my hand at a definition of Life where so many have failed, but from the stand point of the existence of a personal, living Creator, whose work must be, at least in part, a reflection of himself—a Vital universe—we define Life as follows: The vital substances, so far as we know, which make up the vital universe, are so correlated to certain kinds of matter that, in suitable conditions, the forces of Life work Matter into organic bodies, as plants and animals. What Life is, *per se*, in its nature, its essence, our definition does not attempt to tell, but if the definition is defective on that account, then no definition can be framed of substance of any kind.

Years ago Mr. Tyndall called for a new definition

of Matter, giving to it a wider field and additional power, as a means of dispensing with a vital world; but it does not come. He even fails to inform us in what respect our "notions" should undergo a "change." Would he take from Matter any of its acknowledged properties, or make additions to them? Would he manipulate the mass, or strike at the atomic elements? Materialism has promised us nothing which we look for with more interest than this new definition of Matter. A great feat will be accomplished when Matter is so defined as to render superfluous a definition of Life.

§ 7. Life Precedes Structure.

Under the pressure of the difficulties Materialism encounters, its advocates often make fatal concessions. There seem to be moments in which the system is forgotten, and the facts of nature are allowed their direct and legitimate testimony. In his *Biology*, first chapter, while speaking of functions, Mr. Herbert Spencer inquires: "Does Structure originate Function, or does Function originate Structure? Using the word Function in its widest signification, as the totality of all vital actions, the question amounts to this, Does Life produce organization, or does organization produce Life?" This is the crucial question, and upon a correct answer the settlement of the great debate depends. Can Matter work itself into an organic body, plant or animal, is the same question in

another form. In its discussion, Mr. Spenceer gives a lengthy *a priori* argument resulting in the following conclusion: "It may be argued, on the hypothesis of Evolution, Life necessarily comes before organization; on this hypothesis, organic Matter, in a state of homogeneous aggregation, must precede organic Matter in a state of heterogeneous aggregation. But since the passing from a structureless state to a structured state *is itself a vital process*, it follows that *vital activity must have existed while as yet there was no structure—structure could not else arise*. That function—that is, the *totality of vital action*—takes *precedence of structure*, seems also implied in the definition of Life."* He further says: "Function is, from beginning to the end, the determining cause of structure." We accept Mr. Spencer's concessions of fact, but reject his reasoning. The truth is, function results from structure. Because of its peculiar "structure," the "function" of the eye is to see. A Theist might assume that the Creator, having in view the function of seeing, constructed the eye for that purpose. Function, *in idea*, in that case, would precede structure. If such is the basal idea of our author's reasoning, he is more orthodox than we had taken him to be. If Mr. Spencer fancies that his reasoning lies within the limits of his definition of Life, we have no objections, for that is of no consequence in any way. He closes his remarks on vital function as follows:

* Italics mine.

“ If the number of different parts in an aggregate must determine the number of differentiations produced in the forces passing through it—if the distinctness of these parts from each other must involve distinctness in their reactions, and, therefore, distinctness between the divisions of the differentiated force, there cannot but be a complete parallelism between the development of structure and the development of function. If structure advances from the simple to the complex, then special function must do so also.” All this is excellent, and reduced to simple Saxon means :

1. That vitality, in point of time, must precede the structure of an organic body ; and this is a crucial point in vital philosophy.
2. That the Life initiates and builds up the organism ; another crucial point in vital philosophy.
3. That as one kind of Life, having its own vital functions, differs from another kind, so there must be a parallel difference in the structures they produce. That is, as the vital functions of the rose, the oak, the eagle, lion, and man differ, so there must be a corresponding difference in the development of their physical structures. Or, conversely, as the structure of the rose, oak, eagle, lion, and man differ from each other, there must have been a parallel difference in the functions of the Life which originated and built the structures. The vital cause was the originating and characterizing subjective, the structure the objective, result ; another crucial point in vital philosophy.

We are gratified that our views on this subject, covering, as they do, much and very important ground, are so fully supported by the name of Herbert Spencer. Do different kinds of Life exist? and are they the cause of differentiated organic bodies? are the great questions to be settled in this controversy. Every other suggestion that can be raised is collateral and secondary to these. They constitute the strong and defensible fortress of Vitalism, and ultimately they will be found to be the rock on which materialism is to be split.

§ 8. *Cavils of George H. Lewes.*

Mr. George H. Lewes* is astonished at the views above expressed by Mr. Spencer, and confesses his inability to understand them. He really means, that he is unable to harmonize them with the interests of Materialism. It is possible that, while stating with great care what struck his mind as the truth, that the great Evolutionist forgot his party, his friends, and his philosophy. The ground held by Mr. Lewes is, that the organism causes Life—that “Life is the synthesis of the organism”—as if an oyster-shell should first create itself, and then, in the interior, create the living oyster. He says, neither Mr. Speneer nor Mr. Huxley (Huxley agrees with Spencer) “would affirm that Life can be manifest without a living body.” No; nor, in this state of being would any body else.

* “Physical Basis of Mind,” p. 48

Vital and mental phenomena appear through the organism. The existence of Life is one thing, and its "manifestation" to man is another and a very different thing. Life may exist without manifesting its functions even through an organism. The difference between Spencer and Huxley on one side, and Lewes, Bain, and Maudsley on the other, is this: The former believe (whether always consistent, is another thing) in the existence of life separate and distinct from structural or organic Matter: the latter hold that Life is a state or condition of self-organized matter. By grossly misrepresenting him, Lewes repeatedly tries to bring Spencer to the support of his own views. It remains to be seen whether Huxley and Spencer will stand by their guns, and risk a schism in the ranks of the Positive Philosophy. Inasmuch as Materialists are unable to frame a definition of either Life or Matter, we must not look for harmony in the minor details of their philosophy.

CHAPTER VIII.

THE CONCEPTION OF MAN AS A PHYSICAL UNIT.

“The universe—the suns and planets, the wonderful organisms—and even the human Mind in its grandest manifestations, are composed of and produced by the same materials and forces.”—PROF. HUXLEY.

§ 1. Relation of Mind and Body.

IT is freely conceded that, as the result of close relationship, Body and Mind may be variously and sharply affected by each other, and in this respect we freely concede to Materialists all they can ask; but when they explain this relation as implying unity of substance in man’s organic nature, and not the co-ordination of different and distinct substances, we must, with an earnest protest, part company with them.

It is a common occurrence in nature that different substances are found to subsist together, and yet, in essence, be wholly separate. Not less than thirteen different kinds of Matter enter into the composition of the human body, each kind embracing, probably, millions of atoms or primal units of being, each in its nature determined solely from within by its own peculiar properties and inherent energies, and yet they form an harmonious organic unit. In fact, nothing in the universe, so far as we know, exists by itself, solitary

and alone, and the mystery of the various modes of union does not invalidate the fact.

The association of man, as an Intelligence, with the Matter of the globe on which he dwells, seems to be in every way proper and necessary to adjust him to his present place of abode. His physical Life acts as a preservative of his body ; for the moment it becomes extinct the work of decay commences. It is impossible for us to form a clearly-defined conception of organic man in the light of observation and consciousness, if we regard him as a unit of substance. The change and play and collision and clash of different and contrary forces in his being imply the existence of different agents as their cause.

§ 2. *The Existence of Mind really Denied.*

Materialists generally begin this discussion with the apparent admission that a substance called Mind exists ; but this appearance is a delusion, and arises from the fact that only by circumlocution can a materialistic terminology be wrung out of any language spoken by civilized man. Materialists can but use the terms Spirit, Mind, and Life, and we attach to them their usual signification ; but we are not long in discerning that they are divested of their usual meaning, and are forced to signify nothing more than the affections of Matter. They deal largely and learnedly in Physiology and Anatomy, repeating what has been as well said in text-books scores of times before ; and,

after an extensive exploration among the nerves and brain-matter of the dead, they come forth with the announcement that they have found the cause—"the physical basis"—of Life and Mind.

Prof. Bain says: "It is the definite relation between outward agents and the human feelings that render it possible to discuss human interests from the objective side, which is alone accessible."*

Consciousness and thought, because inaccessible, are not to be taken into the account by Prof. Bain in his examination of man's "Mind and Body!"

Mind, *per se*, as a subject of study is ignored at the start, and at no time receives special attention.

By the expression, "human feelings," Mr. Bain understands nervous sensations; by outward agents, he means any thing that may be brought into contact with the body; and this Body he regards as the man proper, and the subject he proposes to discuss is, therefore, simply a material organism.

He is aware that a nervous sensation is nothing substantial; nothing within the reach of chemistry; but, as it has a "definite relation" to the body, it is sufficient to examine the body in the absence of the sensation—the seat and the cause of all sensations—in solving the problem of the Mind! Such is Prof. Bain's position in the work entitled "Mind and Body."

As Mind is excluded from the premises of his

* "Mind and Body," p. 37.

argument, it cannot, of course, reappear in the conclusion. In place of giving an exposition of Mind as presented in personal consciousness, and by its manifested properties and phenomena, its very existence is deliberately set aside, and a laborious attempt made to supply its place by “nervous sensations.”

We hope that in former chapters* it was made clear that Mind is the subjective man ; that *its* body is an objective organism ; and that it is as illogical in argument as it is impossible in fact to engulf the whole man in a transient organism. It is sharp practice in Mr. Bain to get rid of Mind at the start, for the consideration of its properties, powers, and phenomena is thus rendered superfluous.

§ 3. *Absurd Reasoning.*

As we pass on, it is our duty to assure Materialists that all such methods of reasoning we regard as mere hodge-podge, and that whatever courtesies self-respect may require us to show the author, we have no thought or feeling but contempt for his argument. Mind cannot be dropped out of sight so easily. Mr. Bain’s position is artificial ; his logic, sophistry ; his representations, perversions ; and his self-respect should have compelled him to show a decent regard for the intelligence of his readers, by beginning this discussion with a full consideration of man’s mental and vital endowments. It is a begging of the question to

* Chapters iv, v.

assume that man is a material unit of substance; that Mind is but the synthesis of the organism; and that in the study of "Mind and Body" we are required to examine only the relation of the organs of an organism to each other and to an external world.

§ 4. *Matter and Mental Force.*

Materialists have discreetly assumed, what has never been proved, that there is stored in the body a specific amount of thought-producing force, and the question to be considered refers to its distribution among the complex organs, affecting their action, their reflex influence, and the results. This force is in part, they say, mechanical, in part chemical, and in part electrical—all, of course, material. In the distribution of these forces a part results in thought, other portions appear in feeling, and the remainder goes to sustain the physical organism. As thought, will, and feeling are physical results, their influence on the body is of a reflex character. Should the machinery of the body perish, or suffer serious injury, the Mind, so-called, vanishes like the blaze of a lamp when blown out.

It is of the first importance that we obtain a clear idea of this subject as held by Materialists; but this is difficult, inasmuch as its advocates prudently use such language as will be likely to give the least offense, and often their real meaning is thickly sugar-coated by words and phrases which are as much

intended to conceal as express their meaning. But all hold, that as is the organism so are the mental results; so much bodily force will produce its equivalent of thought and feeling.

Here we join issue with this conception of the nature of man. Mind and Body, a unit of substance, say Materialists; we deny it, and affirm the existence of two substances—one a living Mind, and the other a physical organism which the Mind occupies and uses.

§ 5. *Prof. Bain's Argument.*

In a former chapter we have considered the correlative influence of Mind and Body, as proof of the existence of two entities, and in this chapter we shall accompany Materialists over the same ground. In a matter of such vital importance it is but just that we allow the best accredited writers of that school to present their arguments in their own words. Prof. Bain, as a champion, shall first be heard. He says: "My hand is lying quiescent on the table—something touches it lightly, a fly or a feather—there is a rush of activity to certain muscles and the hand is moved away. Well, suppose the two things to be the remote cause and effect—the light contact, cause; the motion, effect. What may we suppose to be the intermediate links? Unless the process be something quite unique there must be a channel of communication from any point in the skin of the hand to all these ten muscles. If a similar effect were to

occur in the foot, the part moved would be the leg, showing lines of communication between the skin of the foot or leg and the muscles of the hip, thigh, and leg, of which a certain group concur in the single effect of withdrawing the foot.” *

He may move his foot, or he may will not to do it. There is no necessary connection between such irritation and action of the limbs of the body. Mr. Bain continues:

“ Suppose now, instead of a light contact, the hand is sharply pinched in the very same place. The previous case shows the evidence of lines of communication between the skin of the hand and a group of muscles of the shoulder and arm, and we are prepared for a similar manifestation, perhaps more violent. We are not disappointed as to the violence; the same group of muscles appear to be raised, and to act more strongly; the withdrawal of the hand is greatly quickened. We find, however, that this is not all. With the mere arm movements are coupled a great many more—in the other arm, the legs, the body, and the face, besides the more concealed movements shown in the voice, which emits a cry, a shout, or other exclamation. We see that any part of the skin of the hand is in connection with perhaps a hundred muscles” [or with the brain and Mind directly, and these with “the hundred muscles”], “the notable circumstance being that a weak touch does

* “Mind and Body,” p. 24.

not arouse the wider circle of movements. . . . Nay, further, if we try similar experiments upon the other senses we shall find similar effects, with a slight application, a limited class, of movements; with a severe application, a wide display, identical in general character with those due to a pinch of the skin. A very bitter taste, a malodor, a screeching discord, an intense flame, will each awaken movements of limbs, body, face, and voice. Every one of the senses is in the same extensive communication with the organs of action."

The cause of the above fancied but not necessarily real physical phenomena is thus explained:

"The vastly numerous inter-communications above shadowed forth are effected through the nerves and their central masses."

Mr. Bain was not an anatomist, nor chemist, nor physiologist; but he gives us, as any one can do with a good library at hand, a clear and concise conception of the nervous system, taken mostly from Dr. Lionel Beal's works; and in reference to the number of the nerves, holds the following language:

"We may now judge of the immense multiplication of nerve elements in the brain and nerves. Estimates have been made of the number of fibers in individual nerves. The third cerebral nerve (the common molor of the eye) is supposed to have as many as fifteen thousand fibers. In the sensory the fibers are smaller, and in the large nerve of sight—the

optic nerve—the number must be very great, probably not less than one hundred thousand, and perhaps much more. The number of fibers making up the whole substance of the brain must be counted by hundreds of millions. In this enormous multiplication of independent nerve elements we seem to have the suitable provision for the vast number of actions of human beings as above exemplified."

The next point which Mr. Bain makes emphatic in regard to nerves is the undisputed fact that "nerve elements, fiber, and corpuscle are material in their composition and quality." He then defines nerve force as follows:

"This is an agent with various powers—mechanical agency, heat agency, chemical agency—all which are due to the molecular action of the nerve substance, the complement of the change being a supply of blood in proportion to the force set free."

The nerves are not agents, but instruments; of "molecular action" and nerve forces and currents nothing is known.

Mr. Bain next proceeds "to the tracery of correspondence and concomitance between mental acts and bodily changes." Consistency required him to say between bodily changes *producing* mental results, for that is the goal toward which he is directing his course.

After a survey of the five sense organs, showing their connection with the nerves, he draws this conclusion: "Facts such as these show how deeply the

mental character may be affected by the structure of the Material organs."

The next point considered is, the correspondence between Mind and Body in respect to their mode of action. He says :

"By a series of very ingenious and conclusive experiments the rate of passage of the nerve force has been shown to be about ninety feet per second ;" and the following is the conclusion of the argument above condensed, italics mine :

"In short the *Mind* is completely at the mercy of the *bodily condition* ; there is no *trace* of a separate, independent, self-supporting *spiritual agent*, rising above the fluctuations of the corporeal frame."

. We make no apology for allowing Mr. Bain to state, in his own carefully chosen words, in every case, his premises, argument, and conclusion.

§ 6. *The Fallacy of Bain's Argument Exposed.*

If the above Materialistic conception of man is correct, then much light may be thrown upon his structure by examining him simply as a machine, as there must be much in the complex structure of his body which corresponds with other mechanical structures.

Let us weigh well and make emphatic the words of Mr. Bain : "The Mind is completely at the mercy of the bodily condition ;" "no trace of a separate spiritual agent rising above the fluctuations of the corporeal frame."

The Body is, then, like a musical instrument—piano or organ; outward conditions or circumstances, “a straw,” “a feather,” or a “pinch,” are the musicians manipulating the keys—the nerves; and physical action, such as thought, will, and emotion, is the music. As an organ is quiescent without a player, so the body is dependent upon the external influences of “a pinch,” or contact with something, to start the nervous thrill, and thus generate thought and action.

The thermometer is a machine designed to mark temperature. The movement of the mercury up and down in the glass tube indicates thermal changes in the air. The change of temperature is the cause, the action of the mercury the effect, and the measure of the motion of the mercury is in exact accordance with the force of its cause, and hence the value of that instrument.

Like the thermometer, Mr. Bain's material man is a piece of complicated mechanism; the same force upon the body will produce uniform results; different forces a different result, for, as he says, “the Mind is completely at the mercy of the bodily condition,” and there is not “a trace of a self-supporting spiritual agent” there.

A water-wheel is, by itself, a piece of inert mechanism. I let fall upon it a few drops of water, but there is no motion; I increase the quantity to some gallons and a slight motion follows; I then slowly lift the flume-gate and the motion is greatly in-

creased, and the velocity it acquires depends upon the momentum of the water falling upon it. In precisely the same way, Mr. Bain teaches, bodily irritations produce mental action: not Mind as substance, but thought, will, and feeling—physical excitations.

A given quantity of heat applied to a kettle filled with water causes the liquid to boil; now this boiling of the water is not an agent, but a state, and it illustrates exactly Mr. Bain's conception of a living, thinking man. The white and gray matter of the brain when stimulated or irritated to the thinking-point, produce mental phenomena as the seething, bubbling results.

Had our author prefaced his treatise on Mind and Body as follows, we should not call in question any of his statements: "Having accompanied Mr. Gulliver in his voyage to the Island Lilliput, and spent some years in the study of the physical and mental structure of the Lilliputians, I propose to give a full and exact description of this remarkable people. Though human in appearance, and sometimes brilliant in intellect—for they have their Homer, Shakespeare, and Bacon—they are, in fact, automatons; they have a way of winding each other up when work is needed, and then they run for awhile, like clock-work, till finally a further winding up becomes a necessity." But, as the foundation of this philosophy is our own consciousness, we know, to an absolute

certainty, that its most important features are not true. Our consciousness contradicts him at every step in his argument. If he is not writing of Swift's Lilliputians, he has before him some other imaginary people, and not the real man we know.

But, if Mr. Bain's conception of man, as above illustrated, corresponds with consciousness, let us accept it, for truth is the object of our search. Let us, however, first test the assertion that "Mind is wholly subject to the bodily condition, and that there is not a trace of a self-supporting spiritual agent there." Prof. Bain takes us into the realm of observed facts, and to facts will we go.

Some years ago I was among the Sac Indians, and learned, from a missionary, that the following incident had transpired but a few days before my arrival. An old chief having died, a successor had been chosen by the usual method. Not every one was qualified for this high office, and the virtue of each candidate must be thoroughly tested. What the aspirants for chieftainship needed to success as candidates was, steadfastness of nerve, indifference to pain, and an unyielding endurance. Few were the candidates who presented themselves, for none relished the test of fitness. A son of the deceased chief was the first to enter the list of competitors; his back was laid bare, hickory gads of second growth, six feet in length, were brought forth by a rival candidate; and now, if on his naked back he could receive ten blows

from that whip, wielded by the strong arm of a stalwart Indian, without wincing, or showing the slightest sign of pain, he was to be declared chief, unless the prize could be taken from him by a more hardy competitor. The first blow buried the whip in the back of the Indian, and the blood spurted into the air; the second cut a gash, ragged and bleeding, more than one foot in length, but not a muscle of his face quivered or moved, nor in any way did he betray an expression of pain. Deliberately the other eight blows were given, and with the same result. If the cutting of the skin, the tearing of muscles, and the laceration of nerves could bring the brain to a thinking or feeling state, and if the law of mechanics had prevailed, that Indian's cry of agony would have rent the air, and every muscle of the body would have shown sympathy with the lacerated parts. Can any candid mind say, that in this case "the Mind was completely at the mercy of the bodily condition," and that we "can see no trace of a separate, independent, self-supporting agent rising above the fluctuations of the corporeal condition?" The "touch of the straw" and the "pinching" were terrible, but no perceptible mental results followed; the temperature rose high, but the mercury refused to move; the fire under the kettle was hot, but the water refused to boil. The Indian manifested the presence of a mental force which was mighty in its supremacy over irritated nerves and lacerated muscles. To see the water-wheel stop, turn

back, and drive the water up through the flume, and hold it there, would be a marvelous sight; but not more so than to see the Indian's control of his nerves and muscles, on the hypothesis of Materialism. The truth is, Mr. Bain's proposition is squarely arrayed against the experience of every human being—it is ridiculous, and every Materialist should be ashamed of such an argument.

Let us vary the scene. Men of thought, on horseback, have been known to ride into rivers at fording-places, unconscious of their situation till the sinking horse brought the water over their saddles. In such cases did not the water mechanically set the nerves in motion? If mental action follows physical action, as effect follows its cause, why was there no sensation, no consciousness, no thought, no feeling? As the water came in contact with the lower limbs, not less than a million of the nerves of the body were excited, and yet the result of these forces in producing mental action amounted to nothing. In the mean time, without any nervous irritation whatever, the Mind of these men was absorbed in solving some problem of science or philosophy. Millions of such and similar facts have occurred, and they demonstrate that "Mind is not completely at the mercy of the bodily condition," but that there is present "a separate, independent, and self-supporting agent," which "rises above the fluctuations of the corporeal frame." Soldiers, in the heat of battle, have been wounded,

but have fought on till the field was won, unconscious that their own life-blood was flowing upon the ground.

Mr. Bain's statements are proved to be untrue by two far-reaching and indisputable facts:

1. By the control which the Mind has over the body, not only in ordinary circumstances, but even when the torn and lacerated nerves cause the most excruciating agony.

2. By the Mind's isolation from the body when laboring with some difficult but unsolved problem; and by its unconsciousness of violence done to the body, because it is otherwise engaged.

But let us test the soundness of Prof. Bain's principles on a lower plane of being, where the physical impulses are stronger, and the mental power to control it is far less. If there is any truth in them, or if they have an application anywhere, let us find them. If he is correct in teaching that the mental corresponds to the corporeal, as effect to cause, then the act of a wolf springing upon a sheep, or a lion upon its prey, may be explained upon mechanical principles. A comparison of the facts of nature with his hypothesis will show that not even wild beasts are so low down as to be subject to mechanical law, or to the forces of mere Matter.

On Mr. Bain's theory, when the image of the sheep strikes the optic nerve of the wolf a measure of excitement and action must follow; if the olfactory

nerves of the wolf are also smitten, its action must be increased ; and if the bleating of the sheep has caused an additional shock to its auditory nerve, at least three fifths of the nerves of the animal must be under the most powerful "irritation ;" there must be an irresistible rush of "nerve-currents" upon the muscles, affecting every organ, tissue, and drop of blood in the animal, and we might expect the hungry beast would become furious, and fly through the air with open mouth, and that, in a moment, the sheep would lie bleeding at its feet. But what are the facts of the case ? Is the action of physical law observable ? Let us see. The wolf scents the sheep, but stands stock-still, snuffing the air to be sure of the direction ; then slowly creeps along, through hiding-places, it gets to the leeward of its prey ; then calmly surveys the situation, as if inquiring if the shepherd's dogs are near ; now it *sees* the sheep approaching, and crouches upon the ground ; it keeps out of sight ; the sheep bleats, but the wolf does not stir ; the smiting of its optic, olfactory, and auditory nerves has no perceptible effect upon its muscles ; the supreme moment has not yet come, but it is near. Changing its position, unobserved, and now sure of its prey, the wolf springs upon the sheep, and its blood smites the sense of taste, setting in motion another class of nerves. The nerves of touch are also smitten, and the whole machinery of the wolf is "irritated" and excited to the utmost, and what does it do ? Quietly and calmly

it eats its meal, then carries what is left to its den. The cat and the lion crouch for their prey, and quietly wait till the supreme moment comes, then shoot their bodies through the air and seize it. A something, not the Matter of their bodies, seems to have over all their actions an absolute, suppressing, directing, and controlling power.

The facts of nature are squarely opposed to Mr. Bain's theory. Even the brutes, if they could speak, would disclaim it.

And yet this hypothesis is the basis of Materialistic philosophy. Mechanical forces, chemical affinity, the supposed "nerve currents," whatever they may be—electricity, magnetism, "external irritations"—can give to the body no special direction, unless they are associated with intelligence and will. A slight irritation, as made by "a feather"—a little action, physical and mental—a severe "irritation," as a "pinch"—violent agitation, physical and mental—is the Materialistic summation of the phenomena of the entire man. How a philosopher can so far ignore his own consciousness, and so blind himself to the thousands of facts which daily surround him as to be able to write such things without a smile or a blush, is a mystery. But the more determined one is to establish a theory, the more blinded he becomes to opposing considerations which lie across his path. On no other ground can we award to Mr. Bain the credit of even sincerity.

§ 7. *Miscellaneous Considerations.*

Although chapter VI is wholly devoted to a consideration of the power Mind has over Body, completely turning the tables upon Mr. Bain, it will be proper to close this chapter with a further consideration of the same subject. If it can be made clear that the Body is an object which is passively acted upon, it follows that there must be a something—a Real—somewhere, that is the subject of such action.

In the organism, *per se*, there is no stability. Take its Life away, and the work of decomposition and decay at once commences, and in a few days the beautiful human form is nothing but common dust. We may not be able so to trace their connection as to explain how the Life preserves the organic body for many years, but the fact can be disputed by none. Corruption is powerless while a spark of life remains. Gaze upon a human form that is prostrate, pale, and cold in death, and then behold a man in the midst of the battle of Life, and inquire, What constitutes the difference between them? The one is an expression of Matter, the other of Matter animated by Life. In the one are the forces of Matter, in the other the forces of Life. The Matter and its forces are the same in both; in the one Life is the all-controlling power; in the other there is no life—the sway of Matter is complete. In parting with the conservative power of Life the body falls into a loathsome condition.

And the Body is not more under the influence of Life than of Mind. An idea in the Mind may cause the heart to ache. Men and women have wrung their hands in physical agony when not a touch had been inflicted upon their sentient nature. A thought in the Mind may pierce the Body like a stiletto. History is full of illustrations of the power Mind has over the Body. An idea in the Mind, though false, and indicative of incipient insanity, may so afflict the Body as to derange the vital organs, and cause death. "Died of a broken heart" means, died by the action of Mind upon the Body.

The corrupt king of Babylon sees the hand as it writes letters and words upon the wall—to him it was the pointing of the finger of fate—so much he could interpret, and that idea in his mind changed his countenance, made his body tremble, and transformed the banquet-hall into a place of gloom. Not a "feather," not a "pinch," had touched him, but an idea of impending doom in the Mind so acted upon the Body, that the "joints of his loins were loosed, and his knees smote one against another."

And yet in the face of these and similar facts which might be added by the thousand, Mr. Bain assures us that "the Mind is completely at the mercy of the bodily condition!" The reverse of his statement is the absolute truth.

That Body may be reached, and made to suffer even unto death through the Mind, has so often been

demonstrated that none should deny it. Though far from the scene of action, hearing not a gun, seeing not a drop of blood, the Battle of Austerlitz gave William Pitt, the prime-minister of England, his death-wound. The *ideas* in his Mind of Austria's overthrow, England's shame, the aggrandizement of France, and fields of slaughtered men, struck down his physical frame. Not a "feather," nor a "pinch," nor any thing from without, irritated his body to cause it to generate thought or feeling; but the *thought* that Napoleon seemed invincible, which the Mind itself had grasped, independent of physical irritation, smote his body, and drove him to his sick-chamber. It is said, that from that day on, till his death, Austerlitz could be read upon his face.

If Man is, as Mr. Bain teaches, a machine, subject to physical and mechanical law, we should suppose that he might be governed accordingly. In the mechanism of a watch, or of a saw-mill, we know exactly what to depend upon; we know the function of each part of the machinery, and are not disappointed. Why may we not play upon men and children as we do upon an organ and other machines? Was the attempt ever made to direct man's course by a continuous physical irritation? Practical Materialism requires that such a system of education should supersede moral instruction. Prof. Huxley has had much to say of education, but has he ever put in practice the system Mr. Bain teaches? We would like to see

him in a school or political convention trying to direct action and inspire thought by the use of "feathers," straws, "nippers," or any other tools he might choose to employ.

If Life and Mind are only the results of a stimulated or irritated physical organism, such superb terms as Soul, Spirit, Mind, Reason, Thought, Conscience, and Will should be stricken from all the languages of civilized life. Their use tends to ignorance, superstition, and fraud; or if used, they should be brought down on a level with such words as digestion, perspiration, respiration, assimilation, and never convey the idea of Vital substance or of any thing but the affections of Matter. But while I am conscious that I command my hand as I do my pen, I shall use a vocabulary whose pregnant meaning lies at the base of nine tenths of the world's literature.

Both science and common-sense have always, and every-where, regarded Matter as clothed with a set of properties peculiar to itself, such as extension, divisibility, gravity, form, and color; and to Life and Mind have been ascribed another set of properties wholly different from those accredited to Matter, such as thought, consciousness, will, joy, desire, aversion, hope, fear, and despair. Is it even conceivable that a unit of Matter can possess this double set of diverse properties? To ascribe the properties of Life to Matter, is to destroy all proper conceptions of Matter; the idea of a material Mind excludes all proper con-

ceptions of Mind; and the further idea that both sets of properties can have the same basal cause, is the extreme of absurdity.

But the fact is palpable, that in the Mind are affections which are wholly unknown to the body, and in the body affections which are purely physical in their nature and effects. The emotions of peace, love, hope, joy, gratitude, trust, an approving conscience, all pleasant emotions, have their origin in the Soul. The body may participate in the cause and effect of this gladness, but the gladness is purely psychical, containing no element of the sensational, and can have its seat only in the Mind.

If Life and thought result from mechanical law, as Mr. Bain teaches, then the mental capacity of man might be inferred, or calculated from mathematical measurements of the body. A firm osseous structure, a well-developed muscular system, the health perfect, and the supply of food in quality and quantity all that could be desired, would furnish the data for the calculation. We have men of different caliber, and engines of different "horse power," and as the latter machine is susceptible of exact measurement, why not the former? If fifty pounds of nerve and muscle, subjected to a one-pound irritant, during three hours, produce x quantity of thought, the same amount of nerve and muscle in another man, subject to a two-pound irritant, for the same length of time, ought to produce $2x$ quantity of thought.

If there is any truth in this philosophy, such calculations would be its practical outcome. But, again, the facts are all the other way. In thousands of instances man has manifested great intellectual vigor when the body was faint with fasting and disease. Brilliancy of intellect and decrepit old age are not unfrequently found together. According to Mr. Bain's teaching, the pugilists of the land ought to be our statesmen, poets, artists, and philosophers.

Mr. Bain undertakes to explain our pains and pleasures by the facts of nerve irritations. He says, the nervous "thrill" which produces pain must be the opposite of the "thrill" which causes pleasure; but all this amounts to nothing, inasmuch as nerve "thrills" and nerve "currents" are the mere figments of his imagination. Physiology knows of nothing of the kind. The fact is, violence done a nerve produces pain; sympathetic or harmonious stimulants applied to nerves produce pleasure. And then a sharp distinction is to be made between physical and psychical sensations—rheumatic pains, the head-ache, suffering from a blow, from the amputation of a limb, are clearly physical, though the consciousness of these pains is in the Mind. If we suffer from fear, disappointment, the loss of loved ones, remorse, despair, we know that the seat of the pain is in the Mind, and that the body is affected only indirectly by its presence. Blistering the body would be no counter-irritant to the pains of remorse, and no silent,

soothing idea could reach the aching nerve of a tooth. In each case our consciousness of the seat of the pain is as clear as that it exists.

Look at this subject as we may, the Body is one thing, and has its limits; the Mind is something else. The conception of man, as a physical unit, is an outrage on consciousness and common sense. All the relations of man's physical nature are of a physical character; the relations of the Mind are wholly of the incorporeal kind. The one is the symbol of a vital world, of which it forms a part; the other of a material realm, of which it forms a part. Their association implies relations, not a loss or blending of essences.

CHAPTER IX.

MATERIALISTIC PROCESS OF ELIMINATING MIND FROM BODY.

"The development of Mind, both in individuals and through generations, is a gradual process of organization—a process in which MATTER is undergoing her latest and most consummate development."—MAUDSLEY.

"Let a man be given to the contemplation of one sort of knowledge, and that will become every thing. The Mind will take such a tincture from a familiarity with that object that every thing else, how remote soever, will be brought under the same view."—LOCKE.

§ 1. The Wrestling of Materialists with their Problem.

WE are not yet through with Mr. Bain. Not satisfied with his labors to prove that organic Man is, vitally, a unit of substance, the bold attempt was made by this acute Scotchman to solve the problems of Mind and its phenomena on the basis of Physiology. Materialists cannot deny that in man appear phenomena so unlike the phenomena of Matter, that they can be symbolized only by a special set of terms, such as Life, Mind, Feeling, and Will; and the task they undertake is, to account for them by the operation of the forces and laws of Matter. They carry an exposition of organic Matter so far as to embrace in its properties all the functions of Life and Mind. They conceive man to be an organic body,

composed wholly of Matter, which lives, feels, and thinks; and we freely concede, that if mental phenomena can, without the possibility of error, be accounted for on the basis of Matter, there is nothing more to be said on the subject. But we are not willing yet to admit that Materialists have made this point and settled the controversy. We think that the supposed basal facts of their argument are mere fictions, and their conclusions not warranted.

The advocates of this philosophy are Professors Bain, Maudsley, Büchner, Lewes, the triumvirate Tyndall, Huxley, and Spencer, and many others. The German, French, and especially the English languages have been exhausted by men of great learning and ability to set forth these views.

Prof. Bain, the boldest and acutest of these authors, goes directly to his subject, never leaves it, nor leaves unsaid any thing which can be pressed into its support; and we confer a favor upon his colleagues and their cause by allowing him to speak as the representative of both. An examination of the peculiar philosophy he unfolds, as a means of freeing the body from the presence of a Mental Substance, will fully lay bare the foundation on which Materialism rests.

One of the corner-stones of Mr. Bain's structure is expressed as follows: "For every mental shock, every awakening of consciousness, every mental transition, there must be a concomitant nervous shock; and as one is more or less intense, so must the other

be.”* Mr. Bain’s meaning is, that every mental act is but the result—the response, the echo—of a nervous shock. Nerves, the cause—thoughts, arguments, and feelings, the results. As light emanates from the blaze of a lamp, so out of nerve shocks has come the thinking of the human race.

§ 2. *The Strategy of the Argument.*

In Mind Mr. Bain recognizes “Intellect, Will, and Feeling.” He says: “Although in tracing out the bodily accompaniments of Mind we shall view the three powers in separation, we may expect to find certain great laws pervading the whole.” This position is strategic, and unfolds the policy of the argument. These all “pervading great laws” are simply nerve forces, and are so to be used as to merge Intellect, Will, and Feeling into one physical sensation; and thus the work of eliminating the living spirit from the body will be greatly simplified and abbreviated. If some act of the Mind can be associated with a “nervous shock,” the conclusion will be drawn that all mental phenomena are nothing but modifications of nervous action.

Inasmuch as the entire force of this argument is to rest on the facts and potency of “nerve currents,” or nervo-molecular action, Mr. Bain cannot properly proceed one step in his argument till he has demonstrated that these nervous “shocks,” “currents,” or

* “Mind and Body,” p. 43.

some such action, really takes place. Our best physiologists, including Dr. Tyndall and Geo. H. Lewes, of Mr. Bain's school of thought, declare that the nerve action here posited, as the base of a great argument, is a myth and wholly unknown to science. Prof. Bain was a teacher of logic, and wholly dependent upon others for his physiological data; and his nerve currents are simply the creatures of his imagination.

As we advance let us not forget that the entire foundation of Mr. Bain's argument is a fiction—a mere figment of his brain—his colleagues in science being judges. This single fact would shame out of countenance any philosophy but this.

§ 3. *The Issue Joined.*

Still drawing upon his imagination, Mr. Bain says: "It would seem natural to suppose that the nerves pass from the state of perfect repose to a state of greater or less activity, or excitement, according as they are roused by stimulation; and that we are made conscious accordingly, while the remission of the stimulus and their own exhaustion tend to quiescence and to unconsciousness." We join issue squarely with Mr. Bain, appealing to every man's consciousness for our support, and assert that it is not a fact that man is in an unconscious state unless "roused by stimulation;" nor is it true that, if stimulated by external irritations, the remission of the stimulant

tends to unconsciousness. The application of a rod to a boy's legs stimulates the nerves, creating a painful sensation ; but the quieting of the nerves and the passing away of the smart has no tendency to leave him in an unconscious state ; rather he is more playful than when sulkily enduring the pain. The constitution of an habitual drunkard may oscillate between the extremes of action and stupidity ; but from such isolated ruins of humanity we are not to form our conception of the normal man.

Were Mr. Bain speaking, not of the activities of consciousness, but of the physical changes and transitions from sleep to wakefulness, from weariness to rest, and from sickness to health, his statement would be nearer the truth, still far from it. Man is a living being, he lives all the time, not by fits and starts, and is not dependent upon the "rousing" effects of "stimulants" for conscious existence : and he is as conscious that he possesses an inward self-moving and a self-directing power as that he exists. He is an individual, a unit of being, complete in himself, and the tendency of stimulants, especially if violent, is to throw him out of his normal condition into a state of confusion. In our calmest moments conscious thought is the clearest, the strongest, and the most active.

If "nerve currents" exist as a part of our constitutional structure, is not the body, irrespective of outward stimulants, always under their influence ? Have

they nothing to do with the beating of the heart, the action of the lungs, digestion, nutrition, the secretions, and the circulation of the blood? It is essential that Mr. Bain establish the point that consciousness is nothing but the excitement of the nerves; and if that were a fact, consciousness would exist in sleep (if the theory would admit of sleep), and especially whenever any substance came in contact with the body. Not only are the nerve currents a myth—but the facts of experience and observation are in opposition to Mr. Bain's theory.

§ 4. *Consciousness the Ground of Judgment.*

In all propositions of this kind arguments *pro* and *con* are useless, for as we can do no more than make an appeal to Consciousness, its decisions are absolute and final. Is it not a fact, attested by the experience of every one, that when in the tumult of agitation because of excited nerves, man is not mentally in his normal or best condition? Is he not utterly disqualified for high intellectual work? The fact is, the seat of consciousness is no more in the nerves than in the bones or blood. Physical sensations of all varieties have their origin in the nerves, though the one or uniform conscious knowledge of the sensation is in the Mind—the single intelligence. Mind is the seat of all thought and feeling, the Body of all sensations; and Consciousness takes cognizance of both classes of phenomena, and on the instant distin-

guishes between them. Mr. Bain's strategy will fail him, for we shall not permit physical sensation to pass as the sum of human consciousness, rendering Mind superfluous.

Mr. Bain says: "On this hypothesis our conception is, that when all the currents of the brain are equally balanced and continued at the same pitch—when no one is commencing, increasing, or abating—consciousness is null—Mind is quiescent."

The base of this "conception" is the myth embraced in the words "currents of the brain;" and the "hypothesis" which makes "consciousness null," when we know it is active, and "Mind quiescent," when it may be putting forth a supreme effort in the solution of some problem, is not worthy of "decent respect."

We can always draw a sharp distinction between the affections of the Mind, such as thought, fancy, will, joy, sorrow, hope, fear; and between the affections of the Body, as hunger, thirst, a headache, a toothache, the pain of a broken leg or arm; and Consciousness never mistakes the one class of phenomena, or any member thereof, for the other. A man with a jumping toothache never calls for a poultice of metaphysics. The mental effort required to solve a problem in "Euclid's Geometry" is quite different from the grief we feel at the loss of a child; nor can the pain of a broken limb be mistaken for the feeling of the heart aching with grief. The

nerves are doubtless the basis of physical sensations; Consciousness infallibly assures us that Thought, Will, and Feeling spring from another source. Mr. Bain is putting forth a supreme effort to make the expression "stimulated nerves" convey the idea of "mental action," and in this way force into psychology a Materialistic terminology. This, with our consent he will not be able to do.

§ 5. *The Disposition made of the Will.*

He disposes of the Will as follows: "The distinguishing peculiarity of our voluntary movements is, that they take their rise in feeling, and are guided by intellect; hence, so far as Will is concerned, the problem of physical and mental concomitance is still the problem of feeling and intellect." This sentence is the most shuffling clog of words in Mr. Bain's book. On page forty-three he recognizes in Mind the three departments of Intellect, Will, and Feeling, and promises "to view them in separation;" but, as we predicted, the Will is abolished—merged into and swallowed up by the emotional department of the Mind. Intellect thinks, and can do nothing but handle thoughts; Will determines action, and can neither think nor feel; Feeling is feeling, and nothing else; it cannot think, nor does it dictate any thing. But, by arbitrarily merging Will into Feeling, he removes a mountain out of his pathway, and it only remains to dispose of Intellect. At present Mr. Bain's argument

stands thus: Feeling is a physical or nervous sensation, and has its seat in the Body; the Will "takes its rise in feeling," and may, therefore, be regarded as a physical sensation. Two departments of the Mind are thus disposed of on Materialistic principles, and only one remains.

But let us pause a moment and consult Consciousness, the only oracle authorized to speak in this case. In a certain situation appetite and passion, both strongly stimulated, urge a man to a given, but forbidden, course; Reason, supported by Conscience, perceives the wrong involved, and judicially decides accordingly, but can go no further; Mind stands poised and trembling for a few moments on the pivotal idea of *ought*, feeling inclining strongly toward the wrong; and now the whole responsibility of what *shall* be done is thrown upon the Will. The emotional or impulsive in his nature leads one away, but Reason coolly decides that that way is wrong, and ought not to be taken; now Will, imperious and cold, as dictator comes to the front, and decides what action shall be taken, and if that action is right, Will as one power is arrayed squarely against Feeling as another, and therefore cannot be emotional in nature. Mr. Bain's philosophy would annihilate this part of man's nature, and take from him the basis of all responsibility.

We are aware that many people are the yielding victims of passion and appetite, but such facts only

prove that in them the Will has not assumed the proper ascendancy over their lives.

Prof. Bain still further expatiates upon the Will. He says: "The primitive basis of the Feeling which we call Will is the surplus nervous power of the system discharging itself, without waiting for the prompting of sensation." Hail, ye metaphysicians living! and hail, ye shades of the dead! the Will at last is found, and defined; it is the self-discharge of the surplus energy of the system! The discharge is effected without the excitement produced by stimulants; the gun goes off of itself, and how can any one tell what will be the direction of the nervous power excited? On this theory, how is it that men of great will power have been noted for coolness and long-continued steadiness of action? The "discharge" of a gun, on the instant, exhausts its force, but real will power may exist scores of years without respite or change.

Every Mind that is able clearly to discriminate between Intellect, Will, and Emotion, is conscious that Intellect does all the thinking; that every shade of feeling belongs to the Emotional department; and that in Will there is nothing but a clear, calm, cold decision in reference to any one of two or more acts to be performed. The Will has nothing to do in deciding what is right and what is wrong—that is purely a Matter of Reason; and whatever feeling may attend the act of the Will, it is no part of Will, but

arises from the emotional part of the Mind. Mr. Bain's philosophy has no application to fact except in the automatic movements of infants in whom will power has not been developed.

On page seventy-seven the same ground, with slight variations in the way of illustrations, is gone over again. He says: "We want a kind of activity that shall start forth at any time when pleasure is to be secured or pain to be banished, and that shall be directed to the very points where these effects can be commanded. For such a power we must refer to the great fundamental law of Pleasure and Pain."

Physical Pleasure and Pain start nervous currents (myths by the way) which mechanically produce a physical sensation, and this sensation is Will. Nerve currents—a sensation, the cause; Will, the effect. Emotion and Will are now wholly in the body as a part of its phenomena. The sting of a wasp causes a nervous thrill of pain; an inflammation, a kind of activity, ensues, and that inflammation, embracing the "great law of pain," is Will. That local Will—that is, a pain—prompts the hand to kill the wasp. Traced back Mr. Bain's argument is as follows: Will is merged and swallowed up in Feeling, Feeling is a physical sensation produced "by hypothetical "nerve currents." Nerves stimulated by pleasure or pain produce both Will and Feeling, and they are thus properties of Matter.

Before this conception of man can gain credit there

must be: 1. A complete revolution in Psychology and mental Philosophy. 2. The uniform decision of the consciousness of mankind must be pronounced false and misleading. At present our convictions are decided that human power is of two classes, physical and mental, and that Will determines as between two or more acts that may be performed. 3. Especially must we discard the idea that Will is a responsible directive power, and abolish all distinction between virtue and vice.

§ 6. *The Intellect as viewed by Materialists.*

Mr. Bain passes to consider the Physical Basis of Intellect. He states, as follows, the doctrine he is about to combat: "But thought is at times so far removed from the bodily condition that we might suppose it conducted in a region of pure spirit, merely imparting its conclusions through a material intervention."

This is a fair statement of the conception Spiritists entertain of the origin of thought, and Mr. Bain is candid in letting us know what he rejects as well as the ground he occupies. He says, further: "Unfortunately for this supposition, the fact is now generally admitted, that thought exhausts the nervous substance as surely as walking exhausts the muscles."

The position of Vitalists in regard to the relations of Mind and Body is persistently misunderstood by Materialists. We recognize fully the fact that the

Mind is locally associated with the brain, and the fact that the labor of thinking exhausts nervous substance is exactly what might be expected. If currents, electrical, or of any other kind, pertain to the nerves, they are largely under the control of the Mind. My arm is now at rest; I can allow it to remain so, or, through the voluntary nerves, by some means unknown, set it in motion, or move my whole body, just as I may will to do. Mind, by or through the use of nerves, acts upon a separate muscle in the production of each separate note in a most complicated piece of music. The habitual and almost constant method of the Mind's conscious action in this Life is through the material organism, and we contend as strongly as Mr. Bain can desire, that severe and protracted study tends to weary and exhaust the power of the nerves. A considerable portion of the brain mass is living protoplasm; this is heavily charged with electro-nerve force, and this or some other force, together with the bodily Life, may serve as the connecting link between Mind and Body. On our own hypothesis it might be expected that mental action would exhaust the bioplasts of the brain and nerves, and that physical weariness would follow.

As we foresaw, Mr. Bain's method of eliminating Will and Feeling from the body is also to be used in getting rid of Intellect, or accounting for it as a property of Matter. He says: "In the position already advanced in respect to the Feelings and the

Will, we have also some of the physiological foundations of thought." Again : "When any new [nerve] currents are commenced, or when existing currents are increased or abated, we become mentally alive, and if we are already conscious, a change comes over our consciousness. It can easily be made apparent that Discrimination is the very beginning of our intellectual Life."

Mr. Bain writes for effect, and is careful not to give offense by the use of unbefitting words; and his real ideas are sometimes slipped into a sentence like the giving of sugar-coated pills to a sick girl; but, whatever his chosen language, his meaning is exactly what is more frankly expressed by Vogt in the following sentence: "Thought stands in the same relation to the brain as the bile to the liver or urine to the kidneys. The appeal to a vital force is merely a paraphrasis of ignorance." Mentally man is dead, except when nerve currents are in action, as the result of some outward stimulant. Precisely as if he had said: An electric wire is alive while an electric current is passing over it; at all other times it is dead. That is, there is not anywhere, nor at any time, a Mind, *per se*, and in the absence of the unknown nerve currents there is nothing mental. The act of "Discrimination," or variation in nerve currents, and Intellectual existence, are one and the same thing.

"Discrimination" is a nervous act of perceiving, and this act has its origin in modified nerve currents.

As one nerve current starts off it may take on the form of a goose; another, with a slight variation, the form of a philosopher; and an unusually quick and sharp "current" may be able to "discriminate" between them. When this play of nerve currents shall cease Intellect dies, or ceases to be; a fresh excitement of the nerves, produced by the application of some stimulant, revives it again.

Certainly Mr. Bain presents very clearly his views of Mind and Body. We know exactly what he means, and, what is better still, the subject is brought within the limits of observation and experience. He has given us an hypothesis that can be worked and its truthfulness tested in a thousand ways. Had he said that in the moon a machine was kept at work by Varuna or Jupiter, which so acted upon the interstellar ether as to generate thought, will, and feeling in man, we could not deny it, as a journey to the moon for the purpose of investigation is not practicable. It is true we know no more about his "nerve currents" than we do about his machine in the moon, but then our mental operations are objects of Self-consciousness, not Induction.

Now since Mind is disposed of by being reduced to a nonentity, nothing remains to be considered but Body and its capacity to think. We must assume that the carbon, sulphur, iron, potassium, phosphorus, oxygen, and other kinds of Matter which enter into the composition of the body, brought themselves

together and wrought themselves into the millions of organs that compose the structure. But difficult as this proposition is to be believed, it has this advantage: when once fully embraced, such is the strength of our credulity that we can believe any thing our philosophy may require.

The dissecting knife will not enable us to detect a trace of thought, or will, or feeling in the nerves any more than in the muscles or bones. We can distinguish nerves from other parts of the body, and different classes of nerves from each other: as those which are in bundles of fibers and fibrils inclosed in a membrane as a sheath; those which are clusters of cells, fibers, and fibrils, sometimes inclosed and sometimes not; and those which are artificial divisions of the nerve-axis, serving as points where different organs unite, and in many ways detect and trace out their physical functions; but between nerve-energy and thought there is an impassable gulf—a gulf which the hypothetical “nerve currents” cannot pass.

We must, then, in the light of Consciousness, limit our observations to the living, thinking man. Whatever the composition of the nerves may be, their energies are inherent in themselves; nothing, not a nerve, can impart nerve force. The properties and forces of nerves indicate their only possible mode of existence as parts of an organism. According to the theory of Bell, each nerve has a specific energy, and it never acts except in that one way. It matters not

how stimulated, the optic nerve responds only by a sensation of color, and the auditory nerve responds only by a sensation of sound. This doctrine has great credit with the physiologists of Europe, and were we sure of its truthfulness, we should urge upon Mr. Bain, or his disciples, the duty of pointing out the nerve of perception, the will nerve, the fancy nerve, and the nerve of logic. As no nerve force can be imparted to a nerve by other substances, the thoughts and acquirements of a Bacon and a Newton must have been innate in their knowledge nerves. Pity Locke could not have understood Mr. Bain's philosophy!

As "nerve currents" may be produced by external "irritations"—"rousing" up the ideas *they* contain—why have we not learned, ere this time, that poems and other works of genius may be inspired by briskly rubbing the body with a coarse towel or a body brush? In case of a thick-skinned philosopher, a wash in a decoction of red pepper or sulphuric acid might have the effect to cause the nerve "currents" to yield a flow of ideas. Do not schools, where the rod is used, really practice this doctrine without knowing it? Strange that Mr. Bain did not practice his own philosophy, and make himself a universal genius. Could he, in any one particular, have proved its truthfulness, he would have saved it from contempt.

According to this theory, ideas are as much a mechanical product as lumber or horseshoes. The nervous system is a wonderfully complicated piece

of mechanism, and it stands related to many other systems of different kinds with which it is in constant action and interaction. In the process of knowing, what is the subjective Intelligence, or the Knower, and what the objective known? Irritated nerves, the active cause; ideas, the results. But why one kind or class of ideas rather than another? What immense playing upon the nerves of Homer to produce the *Iliad*! And must not the player have been an Intelligence to produce so grand a result? Form a materialistic conception of the labor of the poet: the clash of machines—the *Iliad* the result! In the product of this collision there is nothing of the machines either in substance or force, but something else entirely foreign to both. Such as can be satisfied with such a process of knowing are welcome to their peace of mind.

The mental phenomenon called Memory is thus explained: “Retention” exists, “by virtue of specific growths in the cell junctures.” . . . “The special growths accompanying memory must operate at these cells or corpuscle junctures.” What is here said of “specific growths at cell junctures” as the cause of “retention,” has not the shadow of a known truth for its support. Not an experimental philosopher can be found who will indorse this statement as an accredited fact. As an explanation of the cause of Memory, this statement is utterly without value.

Mr. Bain thus estimates the amount of knowledge

that may be stored up by one man: "Acquisition has a limit determined by the amount of nervous substance; that is, the size and quantity of the brain."

Is this statement true? Newton, Byron, Marshall, and many other great men possessed a brain in size below medium. If the acquisition of knowledge has a physical limit, by the appropriation of brain substance to the formation of ideas, why has no one ever knowingly reached that limit? Mentally, man is to be considered as having brain stock in hand to supply a want. When the brain "cells" are full and fastened, and the "nerve crossings" all occupied, there may be memory but no further thinking. Was man in health ever known suddenly to reach a point from which further advancement in knowledge was impossible? And then, if knowledge is fixed brain matter, how can we forget or correct a mistake? To forget would be to lose or change a portion of the brain mass; and what is the agent that can effect the change? It requires as much brain matter to put in form an error as a truth. Iron cast in one form can be remelted, then made to take another, but not so with the brain. Once cast it must remain fixed, or there could be no memory.

Mr. Bain next compares "our acquisitions on the one hand with the number of nerve centers on the other, and finds that our knowledge as a whole represents the great mass of our nerve growths." In proof of this statement he gives us nothing. He says still

further: "As we can easily compute the number of words making up the vocabulary of a language, we have the means of setting forth, in a sort of numerical estimate, the extent of our acquisitions and the number of independent brain growths that correspond to these." A "rough estimate" is then made "of the nervous elements, fibers, and corpuscles, with a view to compare the number of these with the number of our acquisitions." *

Let us hear him once more: "The thin cake of gray substance surrounding the hemisphere of the brain, and extended into many doublings by the furrowed or convoluted structure, is somewhat difficult to measure. It has been estimated at three hundred square inches. It is the largest accumulation of gray Matter in the body. The large candidate nerve cells are mingled with very small corpuscles, less than the thousandths of an inch in diameter. Allowing for intervals, we may suppose that a linear row of five hundred cells occupies an inch; thus giving a quarter

* Many doubts and queries have come to mind in regard to the spirit and object of Prof. Bain's work on Body and Mind. We have seen the statement that it was written at the request of his brother Materialists, and that it was written reluctantly. If we knew that to be a fact, our suspicion would be confirmed that he wrote without strict regard to known truth, and attempted to set the stakes, draw the line, and mark the bounds which Materialists must make good before they could consider their doctrines proved. As if he had said: "This you have to do: Admit the existence of Thought, Feeling, and Will; and in denying the existence of Life and Mind as real, you *must*, in the way I point out, bring these phenomena from the nerves."

of a million to the square inch for three hundred inehes. If one half the thickness of the layers is made up of fibers, the corpuscles or cells, taken by themselves, would be a mass one twentieth of an ineh, say sixteen cells in depth. Multiplying the numbers together, we should reach a total of twelve hundred millions of cells in the gray covering of the hemispheres. As every cell is united with at least two fibers, often many more, we may multiply this number by four for the number of connecting fibers attached to the mass, which gives four thousand eight hundred millions of fibers. . . . With a total of fifty thousand aquisitions of the assumed Brain, which would certainly include the most retentive and the most richly endowed minds, there would be for each nervous grouping fifty thousand cells, and twenty-five thousand fibers.” *

This calculation embraces but little more than half the nervous gray brain centers, but it will sufficiently illustrate the nature of the argument. Now let it not be forgotten that the assumed facts are all imaginary. Probably no man living or dead has, with the help of the most powerful lens, aided by chemical analysis, made so thorough an examination of the brain mass as Dr. Lionel Beale, and he knows nothing of the data on which Mr. Bain makes his arithmetical calculations of mental aquisitions. The fact that a numberless quantity of nerve fibers enter into

“* *Mind and Body*,” p. 106.

the brain mass—that it is, in fact, largely composed of such fibers—is but one element in the calculation, and may have no connection, arithmetically, with his conclusion. Beale says: *

“It is not difficult to find scientific statements which have been accepted even by J. S. Mill, Mr. Herbert Spencer, and Mr. Bain, that have been reasoned upon as if, indeed, these statements had referred to incontrovertible facts of science. In truth, these great authorities have fallen into the curious error of accepting as facts of observation and experiment mere assertions, and expressions of opinion on the part of scientific men whose views they, strange to say, adopt without suspicion and without inquiry.”

§ 7. *How Brain Substance is Transformed into Ideas.*

The following is the Materialistic conception of the formation of ideas. An external stimulus sets in motion a nerve fiber which enters a cell; the cell is thus wrought into a certain shape, which is a representation of a certain idea; that is, the idea is conceived and incarnated by an unappropriated brain cell or molecule, the brain Matter assuming a certain shape corresponding to the nature of the idea. A true conception of the mental capacity of Bacon or Johnson would require that we go from the study of their published books to the study of their brain mass; this we should measure with a tape line,

* “Protoplasm,” p. 127.

weigh in the balances, then count the cell junctions, see how much of the brain had been appropriated, and how much was left unappropriated, and what remained as dead stock; then we should note the shape of the corpuscles and of every differentiated brain atom, knowing that each separate form was the expression of a distinct idea. By this comparison of the brain of Bacon with his published books we could see how many thoughts and feelings passed through his Mind that were never written or published. As the printer, holding his composing stick in hand, is able, from the differently shaped letters to spell out words, and of the words to form sentences, so Mr. Bain estimates the number and kind of a man's mental "acquisitions" by an examination of the brain in all its parts as the only volume which contains the whole of his ideas, true or false.

Mr. Bain says that such as can read it correctly will find "a separate embodiment of every separate impression and idea," with distinct items of brain-mass.

As the birth of each new idea appropriates and fixes an atom of the brain substance, the amount left for future use diminishes as the ideas are multiplied. Practically every thought lessens the brain mass. Mr. Bain says:

"It is because we have something beyond the usual endowments of natural things in the possibility of storing up in three pounds weight of fatty and albuminous tissue, done into fine threads and cor-

puscles, all these contemplated groupings, that make our natural and acquired aptitudes and our knowledge. If there were ‘sermons in stones’ we should be less astonished when they were found in brains.” We are not astonished in either case, for the sermons are in the Matter of the stone mass as much as in the Matter of the albuminous brain mass.

To present Mr. Bain’s conception of man’s mental structure the more distinctly, let us suppose that a stimulated nerve sends to a cell a thrill which flattens a brain corpuscle into the idea “one,” another thrill sharpens a brain spec into the idea “two,” a third corpuscle becomes oval in form and serves as a ligament to connect the sharpened and flattened corpuscle, from which union a third angular corpuscle arises, which is an expression of the idea three. It is thus that albuminous brain Matter does mental work, inspires our poets, and weighs worlds in its balances! A theory more purely fanciful was never invented. Professor Bain shall be answered by Geo. H. Lewes, one of his own school of philosophy:

“Had a clear idea of Function, as dependent on Connection, been present to their minds, certain physiologists would hardly . . . have been led to the monstrous hypothesis of particular nerve cells being endowed with thought, instinct, and volition.”* . . . “Although it is now common to speak of nerves as transmitting waves of molecular motion, and to re-

* “Physical Basis of Mind,” p. 195.

gard nerves as the passive medium for the transference of force . . . we must always remember that such phrases are metaphors," etc. Again, "In proposing the term neurility, I not only wished to get rid of the ambiguities which hovered round nerve force and nerve currents," etc.*

On this subject, in the preceding chapter, the reader noticed the often-quoted disclaimer of Prof. Tyndall of our possessing the organ, or the rudiments of an organ, which would enable us to pass, by a process of reasoning, from brain to thought or from thought to brain. Apparently his pungent words were written in reply to Bain, and to rescue science from the realm of fancy and contempt.

Without doubt the Mind sustains to the brain an intimate relation, but of the mode of the action of the one substance upon the other we know absolutely nothing. The terms "molecular groupings," "electric discharges," "nerve currents," "wave motions," and all others of this class, have no meaning, and convey no known fact in physiology.

A slight blow upon the head has caused instant death; in other cases it has rescued from idiocy. In a few cases a considerable portion of the cerebral mass has been taken away by accident, and the Mind has remained unaffected. The loss of brain substance was not followed by the loss of power or of intelligence.

* "Physical Basis of Mind," pp. 198, 206.

Mr. Bain might reply that the loss of six or eight ounces of the gray brain substance, taken in equal proportions from both hemispheres of the cerebrum, is not an appreciable amount. There are men now living, and in the full possession and use of all their mental faculties, through whose brain mass an ounce leaden bullet has once plowed its ragged furrow. Generally in cases of insanity the brain substance fails to reveal the cause, either before or after death. As an eighth or a fourth of the brain mass may be taken away and the Mind remain unaffected by the loss, and as this loss of brain substance affords not the slightest clew to the connection or relation which subsists between Thought and Matter, of what value are the speculations of Mr. Bain when he attempts to dispense with a Mind, and to mold supposed brain molecules into Thought, Will, and Feeling?

§ 8. The Argument Confessedly Insufficient.

It would seem that after his long and laborious effort, Professor Bain becomes heart-sick of his own performance. After comparing and contrasting Body and Mind, showing truthfully that the properties of the one are not the properties of the other, he says:

“There is surely nothing to complain of in the circumstance that the elements of our experience are, in the last resort, not one but two, . . . the institution of two distinct entities is not in itself a crushing dis-

pensation." Is not this a complete surrender on the part of Materialism?

But why should the attempt be made by men of genius, even if it could be done with plausible success, to prove that man is but an organic clod of earth, and that death is the upshot of existence? Mr. Bain tries to regard his conscious failure as not a "crushing dispensation." Why should honorable and intelligent men yearn for the unconscious repose of an eternal grave? Does the idea of responsibility here incline them to blot out all apprehensions of accountability hereafter? The inspiration of this philosophy seems to be a yearning desire that the utter annihilation of man may prove to be true. Were it not that the subject is of such grave importance in itself, we should think that Mr. Bain, as an amusement, or as an experiment, was simply trying to see how far and how fully Mind could be concealed behind the veil of the body. The confession that two entities may exist, Body and Mind, is made after the completion of a supreme effort to prove the contrary; and this can be accounted for only on the ground that he was painfully conscious that he had failed.

Bain, however, makes another struggle, unwilling to quit the field. He says, speaking of Mind and Matter: "We must grant that the total difference of [their] nature has rendered the union very difficult to express in language." And no wonder, for it is far worse than to make the line describing a circle

harmonize with the lines describing a triangle. Language cannot make a unity, when, as a fact, one is inconceivable. Either Mind or Body must be eliminated as a condition of unity. This fact is clearly perceived by Mr. Bain, and another and a despairing effort is made to dispose of the Mind. "There is," he says, "an alliance with Matter—with the object, or extended world; but the thing allied—the Mind proper—has itself no extension, and cannot be joined in local union." This is really a confession that such union as will make a unit of Mind and Body is impossible. Mind, not having the physical quality of extension or solidity, can have no contactual connection with Matter. Finally, we have the following, which is really the philosopher's leap in the dark:

"The only tangible supposition is, that mental and physical proceed together as undivided twins. When, therefore, we speak of a mental cause, a mental agency, we have always a two-sided cause; the effect produced is not the effect of Mind alone, but of Mind in company with Body—it is, after all, Body acting upon Body."

Hold! Mind is missing!

When did Mind part "company" with Body, leaving "Body to act upon Body?"

Has Mind become Body and taken on the quality of extension?

Are the "two sides" of the same substance acting upon each other? Has the "mental" become phys-

ical, or the physical mental? Have the "twins" become a unit? If so, which has lost its identity? or are the twins divided or consolidated, and but one left us?

After a long argument to prove that Thought, Reason, Will, and Feeling were but "nervous sensations," or "nerve currents," or "nerve thrills or shocks," or "surplus nervous energy discharging itself"—all supposed momentary effects of the physical organism, if any thing—he, at last, talks of Mind and the mental as something distinct from Body. He really takes us back to the starting-point. The upshot of his exposition leaves us in hopeless confusion. Pity he could not have tarried a few moments and explained a few things. Are we to infer that Mind has become Body, and that in man there is no Mind, but that he has become two bodies, one acting upon the other?

He retires as if the "dispensations of two substances" had "crushed" him. Fact and truth grant to Materialists but few indulgences, and they are compelled to practice many self-denials.

Spontaneous generation, an essential factor in every materialistic hypothesis, has utterly failed them, and they can find neither fact nor theory to supply its place.

It would help their cause amazingly if they could detect in Matter the slightest tendency to work itself into an organic body. But the eye of a Materialist never feasted upon such a sight.

If it were not for the inflexibility of language they could devise and frame a definition of Life in materialistic terms, but language is the unyielding enemy of their doctrine.

There are yawning “gaps” they vainly wish were closed.

There are “lost links” that cannot be found.

Mr. Bain’s work lays bare all these perplexities, and to obviate them, he indulges in a series of misstatements, and gives us a mass of absurdities such as we never before met in any volume called philosophy. Had the author’s object been to make Materialism appear ridiculous, he could not have done much better. He started with Mind and Body, and ended with Body acting upon Body.

CHAPTER X.

THE HYPOTHESIS OF THE PHYSICAL BASIS OF LIFE AND MIND.

“The facts of science prove, with considerable certainty, that the organic beings which people this earth owe their origin and propagation solely to the conjoined action of natural forces and materials, and that the gradual change and development of the surface of the earth is the sole, or, at least, the chief, cause of the gradual increase of the living world.”—BÜCHNER.

“Every thing in Mind—every mental operation or result is referred to organization, and no force other than nervous force is recognized. Mental phenomena result from the functional activity of nerve cells, called forth by impressions from without and from within, and modified and directed by the residue of impressions, concepts, and ideas heretofore existent. Mind is no individual entity, but an organic product of ever-variable quantity and quality . . . evolved in such a way that the building up of the Mind is an act of the entire Body, with which, indeed, Mind is conterminous.”—DR. MAUDSLEY.

§ 1. *Huxley's error in regard to the Matter of Protoplasm.*

THE Matter of Protoplasm, Mr. Huxley contends, is composed of oxygen, carbon, nitrogen, and hydrogen, and the compound thus formed is the stuff which gives forth vital and intellectual phenomena.*

* In 1868, Prof. T. H. Huxley astonished the English-speaking public by the new and strange doctrines he set forth in a lecture, delivered in Edinburgh, on the “Physical Basis of Life.” For the first time in the English language a description was given of the matter, which, it was alleged, lives, thinks, and feels. It was held

As all the bricks that come from the same mortar-bed are made of the same kind of clay, so all protoplasm is the same identical Life-stuff. His words are: "Protoplasm is the clay of the potter, which, bake it and paint as he will, remains clay, separated by artifice, and not by Nature, from the commonest brick

that the new fact brought to light would buttress the tottering points of Materialism, and give its advocates a complete triumph. Not in one hundred years has a single lecture in any country elicited more feeling and called out more extended discussions than this one. To justify its boldness, and make good its positions, kept the author and his friends busy for some years; but the steady advance of science has, however, rendered obsolete some of its positions, and others have been essentially modified by superior light.

The English-speaking public would have been less surprised at Mr. Huxley's discovery had it been familiar with the fruits of German study during the preceding decade. John Hunter's work on the Nature of the Blood, in which he taught that new growths depended on exudations of the plasma of the blood, started many German thinkers upon new lines of thought. Schleiden and Schwann discovered the organic cell—a microscopical formation—which has been the cause and occasion of a vast amount of research and discussion. Müller, Valentine, Brown, and Virehow demonstrated the apparent analogy between the vegetable and animal cells, and the fact that a nucleus could be detected in both. When it was found that these cells propagated themselves by self-division, their vital character was fully established. This fact was demonstrated by Leydig and confirmed by Max Schultze, in 1859. In the labor of microscopic discoveries in regard to the behavior of the cell and the changes it undergoes, the name of Brücke, Bergman, Küne, Haeekel, Lionel Beale, and many others should be mentioned.

It was as early as 1864 demonstrated that the matter contained in the cell was what lived, and the name Protoplasm—*first plasma*, or form—was given to it. This substance was thought to be the lowest, or the first, form of Life. German *savants* gave the idea to the world as a demonstrated fact of science. And Mr. Huxley was among the

or sun-dried clod." If the statement that all protoplasm is composed of the same substances in the same proportions were a demonstrable fact, agreed to by our authorities, an unanswerable objection could be made on that basis, in a few words, to the conclusions of Mr. Huxley, as, according to the theory, if Protoplasm is Life and Mind stuff, and is always the same every-where, how is it, how can it be, that in one case the same kind of Matter develops into a spire of grass, in another into an eagle, in another into a lion, and in another into a man? From the same mortar-bed can you make myriads of bricks, not only of different shapes but of essentially different qualities? Clear thinking cannot conceive it possible that the one substance should be metamorphosed into the different kinds.

Mr. Huxley contends that "all diversities of vital existence" have a physical basis, and that "a three-fold unity—namely, a unity of power or faculty, a first to seize upon it, and so use it as to cause a sensation. The Germans furnished and charged the gun, Huxley applied the match, and a great noise was the result. Although Huxley made Protoplasm the basis of Mind as well as Life, yet in his lecture he confined his speculations mostly to vitality, the realm of intellect and thought being left open for the first adventurer that might chance to come along.

George H. Lewes, in 1877, published a volume of nearly six hundred pages, entitled the "Physical Basis of Mind." As Huxley had disposed of Life, so he undertook a like service for Mind. Life and Mind swept from the universe of reals, nothing is left but Matter. These men must be classed among the ablest and most pronounced Materialists of the age. Our business now is to bring their theories into the light of the facts of Nature and test them.

a unity of form, and a unity of substantial composition—does pervade the whole living world.” Again, “Hence it appears to be a matter of no great moment what animal or what plant I lay under contribution for protoplasm, and the fact speaks volumes for the general identity of that substance in all living beings.” Now the first question is this: Is Huxley correct in his dogmatic assertions in regard to the matter—oxygen, hydrogen, carbon, and nitrogen—which composes his hypothetical basis of Life? If mistaken on that fundamental point his argument is essentially defective, and its conclusions without force. It would be easy to show the fallacy of Mr. Huxley’s reasoning on his own assumed principles, for he teaches that “protoplasm is the same, living or dead.” In all cases it is Matter, subject to material force and chemical reaction, and nothing more. In the face of such an assertion he is required to explain why it is that protoplasm—the same substance—takes on such a multiplicity of form. Stricker, who has made this subject a special study, teaches that protoplasm varies indefinitely in consistency, in shape, structure, and function. “We have,” he says, “club-shaped protoplasm, globe-shaped protoplasm, cup-shaped protoplasm, bottle-shaped protoplasm, spindle-shaped protoplasm—branched, threaded, ciliated protoplasm—circle-headed protoplasm—flat, conical, cylindrical, longitudinal, prismatic, polyhedral, palisade-like protoplasm.” Why the same com-

pound substance, subject to the same physical forces and laws, should assume such a variety of forms is left for Mr. Huxley to yet explain.

Huxley says again: "If the phenomena exhibited by water are its properties, so are those presented by protoplasm, living or dead, its properties."* Protoplasm may die, hence there may be dead protoplasm. The Matter of protoplasm does not change in nature, force, or law, by means of death. But the phenomena demonstrate that there is in living protoplasm the something which distinguishes it from a mere transparent jelly, such as can be artificially made. These distinguishing phenomena are vital, and as their antecedent cause is not in the Matter it must be in the Life. In so far as the phenomena of living protoplasm differ from the phenomena of dead protoplasm, there must be a differentiating cause in the one that is not in the other. What is it? In observing that the one mass is dead, and that the other is alive, we perceive and know that Vitality is the cause of the vast difference between them. Life can be restored to dead protoplasm by human agency no more than to a dead tree, brute, or man.

We have evidence that Mr. Huxley now places but little value upon either the facts or philosophy set forth in his celebrated lecture on the "Matter of Life," or the "Physical Basis of Life." The English Dredging Expedition, in 1874, brought up from the

* "Lay Sermons."

ocean's bed, where the water was very deep, an oozy or slimy substance which was called *Bathybius*, meaning "Life from the depths," and Mr. Huxley seized upon it, as Lorenz Oken had done in 1809, sixty-five years before, and proclaimed to the world that at last the Matter which generates Life and Mind had been found! In less than a year after this he united with the rest of mankind and laughed at his own folly, and the celebrated "*Bathybius* of Huxley" has disappeared from science. But the scientist who knows more about protoplasm than any other man, except Lionel Beale, is Ernst Haeckel, Professor of Zoology in the University of Jena. He is a Materialist, and a personal friend of Huxley. The two scientists are wide apart in their views of the composition and nature of protoplasm. Haeckel says: "The quantitative composition of protoplasin, though in some cases greatly varying, resembles, as a whole, that of other albuminoids, and hence consists of from fifty to fifty-five per cent. of carbon, probably six to eight of hydrogen, fifteen to seventeen of nitrogen, twenty to twenty-two of oxygen, and one or two of sulphur." But the protoplastic cell or unit is too small to admit of exact analysis. Haeckel says: "The chemistry of to-day, with its imperfect methods of investigation, is totally powerless before these intricate organic compounds, and it is possible only to surmise from the infinitely varied physiological qualities of the numberless kinds of plastids, the infinite

variety of plastidules out of which they are composed.” Henee we do no injustice to Mr. Huxley or the truth when we affirm that he knows neither the composition nor the form nor the “faculty” of protoplasm, and all that Haeckel knows is that we may “surmise from the infinitely varied physiological qualities of the numberless kinds of plastids the infinite variety of plastidules out of which they are composed.”

Well, then, we are at our starting-point again. Mr. Huxley’s Matter of Life turns out to be a mere myth; as to what it is in its ultimate analysis, all is conjecture. Not a shade of proof is presented that Matter has been found that can generate Life or Mind. Had Mr. Huxley undertaken to show that some fifteen kinds of Matter gathered themselves together before our eyes from the atmosphere, and from the ground, then worked themselves into a human body, and that then this body made itself live, and finally finished its work by the creation of a Mind, or did the thinking without a Mind, he would have achieved quite as brilliant a success as he has with protoplasm or Bathybins as the basis and cause of Life and Mind.

§ 2. *Mr. Lewes comes to the support of Mr. Huxley.*

Mr. George H. Lewes, being later in this field of research, profited by the mistakes and false reasoning of Mr. Huxley, and his argument will receive more

special attention. Both are able writers, but Lewes is the more careful, more subtle, and less reckless of extravagant deductions. It is, nevertheless, wearying to the flesh to read the verbose chapters of the "Physical Basis of Mind." Its tortuous style is exceeded in offensiveness only by the pedantry of its terminology. Elegance and clearness are strikingly absent. In tone the book is self-sufficient and atheistic. Only an indirect reference is made to the possibility of the existence of a Supreme Being, and the philosophy of Darwin and Spencer are held to explain away the necessity of recognizing either intelligence or creative power in the order or organisms of the universe; and yet George H. Lewes, in his day was a man of some importance; he was the *quasi* husband of Miss Evans, known as George Eliot, the great novel writer. He had much scientific knowledge, and was respected by his fellow-scientists. But he is a turgid writer; he has no warmth like Spencer, no poetry like Tyndall, nor the trenchant energy of Huxley. He is ever cool and calm for the reason that he is incapable of enthusiasm. To the consequences of his doctrine, whether to himself, to others, or to the cause of truth, he seems never to have given a serious thought.

He commences his labors by making a clear and honest statement of the problem to be solved, namely, the Mind. He assumes that Life and Mind are "phenomena"—mere effects, and that "every prob-

lem of Mind is necessarily a problem of Life, referring to one special group of activities."

Here, then, on the start, as we examine the plan of Mr. Lewes's argument, we join issue with him, and deny that the problems of Mind are the problems of Life. All that can be known of vitality, as manifested for ages in the vast and varied vegetable kingdom, can be examined without touching the problem of Mind. Botany and Psychology, as sciences, have nothing in common. Mr. Lewes's statement is important, not because it expresses a truth, but because it is a necessary link in his argument. Distinguishing, as we should do, human from animal existence, the vitality of the animal realm, including earth, air, and seas, may be fully studied, and, as far as possible, solved, without a thought being given to the problem of the human Mind. Further, in chapter second of this work, we have demonstrated that vital force and thought have nothing in common, that each must have a basis of its own, and that the Life of the body is in no sense the Intellect. Mind is a substance which exists and acts in the realm of ideas, by thought, feeling, and will; the associations of Life are with the body which it has organized; neither can do the work of the other; Mind cannot touch Matter; Life cannot think. The vitality of the human body can no more reason than the vitality of a tree. Whenever Mr. Lewes will make the fact clear to observation, that where there is life, whether in plant or

animal, there is thought and will and feeling ; we will accept his statement, that the problem of Life is the problem of Mind, but, till then, we shall refuse to our author all progress, and to his argument all validity.

His reasoning, to illustrate and prove the position taken, is equally fallacious. He assumes "that there is one matter, every-where the same, under great diversities in the complication of its elements." There is not a known fact or principle in science that confirms the above statement, and we deny its truthfulness in whole and in part.

If the science of Chemistry has demonstrated any truth in nature, and, as a science, is of any value whatever, it has proved, by millions of analytical tests, that different kinds of Matter exist, and that each kind is endowed with properties peculiar to itself. All that we know to be true of Nature our author rejects, and plants his philosophy on the fictions and dogmatisms of a vagrant imagination. What he calls "the identification of the elements," that is, making them one, has, for years, begged, but begged in vain, for a fact for its support. Any system of philosophy based upon such groundless assumptions is not to be accepted as a truthful representation of Nature ; it is like a building without a resting-place, afloat in the air.

He assures us that in the "one Matter" there is to be noted a distinction of "modes," and that these

“modes range themselves under three supreme heads—Force, Life, and Mind.” By distinction of “modes,” does he mean modes of being, or modes of manifestation? If he means being, then it follows that the “one Matter”—the solitary essence—can metamorphose itself into different essences; and this theory implies both the destruction and creation of Matter. If he means that the “one Matter” can at one moment assume the “mode” of “Force”—what force he does not say—at the next the “mode” of “Life,” and at the next the “mode” of “Mind,” his “Matter” is in power nothing less than Deity.

Thus, in less than two pages of the most extravagant assumptions, our author rushes to the conclusion of his argument, and lays before us the physical basis of Mind. The subject, in all its vastness and with all its consequences, may be thus summed up: “One Matter”—cause, resulting in “Force, Life, and Mind.”

§ 3. *Mr. Lewes's Argument Dissected.*

Let us, as best we can, preserve our patience while we glance at Mr. Lewes's exposition of these basal factors in his argument. After a few words, which are well enough, in regard to Matter in the “Mode of Force,” he proceeds to describe vitality, and uses, without giving him credit, almost the exact words of De Blainville's definition of Life, discarded by Spence and others, as follows: “Composition and decomposition, which are simultaneous, and by this

simultaneity preserve the integrity of the structure." Mr. Spencer rejected this definition, because it applies only to vegetable life.

Passing to Matter as, in "Mode," the Mind, Mr. Lewes says: "While exhibiting all the characters of the two preceding classes" (Force and Vitality), "it is specialized by the addition of a totally new property called Sensibility, which, subjectively, is Feeling." When a philosopher will assert, as a link in the chain of an important argument, that Mind exhibits all the properties and forces of Matter, he invites such an answer as could be returned only by a scoff. Our author has learned from Prof. Bain the advantages to be derived from embracing all intellectual phenomena in "Sensibility," and then calling that sensibility "Feeling;" for but one step more will be required to reach nervous, or physical, sensations; and this philosophy is vagrant—it is on the wing, it is in the air, it is anywhere, till it finds rest in nervous sensation. Here follow important statements, as factors placed at the base of his argument, that contain not a shade of known truth: "Organized substance has become animal substance." Does he mean that vegetable organisms, as such, have become animal organisms? If not, his statement is of no consequence. What change did organized vegetable substance undergo in "becoming" "animal?" What agent caused the inorganic Matter to become organized—as the ground becoming a tree or a human

body? It is useless to make these statements, embracing only the idea of Matter, unless we can see some reason in Matter for the change. Again: "Vegetality has become developed into animality." Does our author mean what he says? Has the rose become developed into a bird, the tree into a horse, or the sensitive plant into a man? Ah, I see! the one Matter may now take on the "mode" of "Force," then Vitality, then Mind! but the assumption that in such a process we see only the play of the "one Matter," is a begging of the question. After delivering himself of the above learned and brilliant nonsense, Mr. Lewes, with calm complacency, reaches the following generalization: "Thus all the various modes of existence may, at least in their objective aspects, be ranged under the two divisions of inorganic and organic—Non-living and Living; and these are, respectively, the objects of the cosmological and the biological sciences." And so Mind is disposed of, and Life is recognized as a mere process of the "composition and decomposition" of an organism!

§ 4. *A new Element in the Materialistic argument.*

We have now before us the bases, the primal factors, of the argument, and on page sixth the author favors us with the key to all that is yet to come in direct support of materialistic philosophy. His carefully chosen words are as follows: "Biology adds classification, and for the first time brings into promi-

nence the important notion of **CONDITIONS**”—what are they?—“of existence and the variation of phenomena under varying conditions.” As I wish to fix in the reader’s mind the use that is to be made of this word “**CONDITION**,” and give him a taste of Mr. Lewes’s style as a writer, I will make a quotation from pages 14, 15. “A similar ambiguity to that of the phrase, “**ordinary matter**,” lies in the equally common phrase, “**vital force**,” which is used to designate a special group of agencies; and then is made to designate an agent which has no kinship with the general group, that is to say, instead of being employed in its real signification—that which alone represents our knowledge—as the abstract statical expression of complex conditions necessary to the manifestation of vital phenomena, or as the abstract dynamical expression of the phenomena themselves, it is employed as an expression of their unknown Cause, which, because unknown, is disassociated from the known conditions, and erected into a mysterious Principle, having no kinship with Matter.”

He charges that Vitalists use the phrase, “**vital force**” to designate a “group of agencies,” but in fact intelligent Vitalists hold that the agent which causes “**vital force**” is a Vital substance. The expression “group of vital agencies” is seldom used. A dozen kernels of corn planted in the ground might be called a group of vital agents, and the “cause” of vital phenomena as seen in the growing stalks.

The word "conditions," as used throughout this book, means any thing and every thing, more or less, that is wanted of it. It bridges any gulf, fills any gap, or supplies any link in logic the author may desire. It is like an exhaustless deposit in bank, which may be drawn on at pleasure without regard to the amount of the draft. That word is ever ready for any emergency, and it solves all mysteries. Take from Mr. Lewes's philosophy the word "conditions," and substitute for it some clearly defined idea, and it would go limping straight to its grave.

On page 20 he ridicules the idea of the existence of "a vital principle." "It is idle, it is worse, it is misleading," he says, "to personify the organic conditions known and inferred in a vital principle: idle, because we might with equal propriety personify the conditions of crystallization into a crystal principle; misleading, because the artifice is quickly dropped out of sight, and the abstract term then becomes accepted as an entity, supposed to create or rule the phenomena it was intended to express."

Here, again, the word "conditions" comes in to help along the argument. As either link or swivel in the chain it is ever available. We can readily excuse our author for making no attempt to specify and define what was embraced in this word conditions, for he does not pretend to know. There is no known force or power in Matter to establish the conditions, and when established, the mortal does not

live who can tell what they are. But the word, used as the symbol of the utterly unknown, wholly vitiates the argument. The astonishing thing is, that it should be used at all ; and the still further astonishing matter is, that we should be reproached for believing that we perceive in Bacon and Shakespeare Minds which were endowed with faculties, properties, and forces of their own. Supposing we abandon the idea of the existence of Mind as a spirit-substance, and adopt, in its stead, the cabalistic word “conditions”—some obsolete Choctaw or Tartar word would do as well—how much on the score of positive knowledge would we gain ? Do we not lose all and gain nothing ? In regard to quartz, the forces reside in the elements themselves which cause that aggregation of Matter, and hence we have no reason or use for a separate “crystalline principle.” Matter itself is endowed with forces adequate to produce that and thousands of other results ; but Matter, as we have seen, never manifests the least tendency to work itself into organic bodies, or to think and feel.

The fact that the organism exists is a mystery. Materialism cannot explain ; furthermore the relation of the parts, and the why and the wherefore of the influence of one organ upon another are equally insoluble mysteries. Mr. Lewes was never wise enough to tell us why he was able to lift a finger. But this vast world of mystery is covered by the word “conditions,” and it is used as freely as if it conveyed to the

Mind a specific meaning. How sublime and brilliant the sentence: "Matter, in a certain mode, or in its 'organic conditions,' wrote the Iliad, and constructed the geometry of Euclid."

§ 5. *Mr. Lewes's Objection that no one has ever seen a Spirit.*

On page 26 Mr. Lewes rejects the hypothesis of Life because no "one has ever observed a Spirit, an Archeus, or a Vital principle." Should one claim that he had ever seen a Spirit or a Life, would not our author justly reply that only Matter could be seen by a sense-organ? Who has ever seen the unit or an entity of Matter? The idea itself of Life places it beyond the range of all our senses; and knowing this fact, as every Materialist does, the above argument is simply puerile. Mental and vital phenomena are special results, and they must have like special anti-thetic causes. Are causes of changes and energy to be denied because not visible to the eye? May not extraordinary phenomena suggest with reason a peculiar cause? May not properties associated with Matter, which are wholly foreign to all we know of Matter, inhere in a non-material substance? On page 31 Mr. Lewes says: "All that the observed facts warrant is, the assertion that organic phenomena are special, and must, therefore, depend on special combinations of Matter and force." As tangible, ponderable, ordinary Matter is what we are dealing with, and as "or-

ganic phenomena are special," then something very specific and knowable must have caused such organism to exist. If that something is not Life it is Matter, and we demand to know the what and the wherefore of its power. The expression, "special combinations of Matter," is employed to avoid too much repetition for the cabalistic "conditions," and means nothing or any thing. Materialism leaves the origin and cause of vital phenomena in utter, absolute darkness, and this fact is fully confessed by Virchow, Huxley, and Tyndall.

It will not be denied that vitality is the unvarying mark of distinction between the inorganic and organic worlds, and is not the inference irresistible that the ever-present Life is the cause of the organisms? In its absence we have nothing as cause of the organism, and must suppose that Matter is capable of self-organization, and of establishing some indescribable and unknowable conditions that will produce special phenomena. The facts of observation are, that Matter was never known to manifest the least disposition or tendency to work itself into an organic body, any more than the iron ore of a mountain to work itself into an engine.

Mr. Lewes thinks he is pressing the cause of Vitalism hard when he says, "Not only is it inexact to speak of vitality as a force, it is almost equally inexact to speak of it as a property." Yes, it is quite as "inexact." That which, in itself, is substance—

a self-centered cause—cannot be a property of something else; rather, it has forces and properties of its own. Yet Mr. Lewes often speaks of “the forces” and “properties” of Life and Mind, showing that his ideas were floating and not very clear nor very mature on the subject.

Our author has the frankness to make the following concession, and the facts involved are of much weight in this discussion :

“The ordinary laws of inorganic Matter are incapable of explaining the phenomena of organized Matter, and chemical forces are controlled by vital force.” The following is the explanation : “The true meaning of the resistance of vitality to ordinary chemical affinity is, that the conditions involved in the phenomena of vitality are not the conditions involved in the phenomena of chemistry.” What has caused the difference ? As the elements of Matter are unchangeable, they carry into the organism the properties and forces they possessed out of it; their chemical relations never cease to act; but in the organism another and a contrary vital force is met by the incoming substance to which its material forces succumb. The observed facts prove that in the organism there is a collision, as between two substances, having contrary tendencies, and that the chemical yields to the vital. But it matters not what difficulties Materialism gets into, the word “conditions” is present to help it out. Yet we must not weary of telling Mr. Lewes that,

till he explains and makes clear what is embraced in the word conditions, he has not advanced his argument one step, nor thrown one ray of light on the subject.

§ 6. *The Universe Primarily Vital.*

Life, as a department of the universe, and as the basal cause of the organic world, must be examined in the light of its own peculiar phenomena. If in the absence of material phenomena there is something that remains, as in thinking; or, if a work is done which neither mechanical, nor chemical, nor material forces can do, that non-material agent must be a vital agent or a mental agent. That a vast amount of work of this kind is done, none can deny. Great and numerous as are the mechanical and chemical forces of Matter, they are few in number and monotonous in detail, compared to the forces of Life and Mind. This is not primarily and fundamentally a universe of Matter and death, but of Mind, Life, and organisms. In our observations and reflections we perceive the mental and the vital parts of nature and their operations, as clearly and as fully as the material parts. There are in the vital world names that outshine the stars.

Mr. Lewes follows Prof. Huxley in asserting that it would be as proper to speak of "horology, contractility, gravity, and attraction" as abstract Reals as Vitality; and it becomes necessary that a sharp distinction be drawn between a property which neces-

sarily arises out of the nature of Matter and between the forces which result from the union of different kinds of Matter on the one hand and Life on the other, as a self-centered substance.

In a certain case attraction has brought together a substance composed of oxygen, hydrogen, carbon, nitrogen, and some other elements. Let us suppose this substance is the dead matter of the jelly fish. It cannot be denied that this mass is a chemical compound ; nor can it be denied that it was once an organic body. As a chemical substance it lacks what it possessed as an organic body ; that is, Life. There is yet present attraction, cohesion, affinity, and all the properties of the original material elements ; but a something which was once present and exercised a supreme potency over the Matter of the organism, and over all its properties, is now wanting, and that is Vitality. Now just in so far as a vitally organized structure possesses a something in excess of a physical substance, there is no analogy between them. We attribute to water, formed of oxygen and hydrogen, its qualities, because of its chemical and physical structure ; but bioplasm and other organized substances possess a Something which is neither chemical, mechanical, nor physical ; and to properly compare the one substance with the other, is to note sharply the radical differences between them. Mr. Huxley says : "If the phenomena exhibited by water are its properties, so are those presented by protoplasm, liv-

ing or dead, its properties." Ah, Mr. Huxley, hold! Protoplasm, living or dead, one and the same thing? This is the rock on which your philosophy splits. Is there nothing in the moving, growing, multiplying protoplasm which is not in the still, dead, dissolving mass? We may adopt Mr. Huxley's law of correspondence between substance and phenomena, and say, "If the phenomena exhibited by dead protoplasm are its properties, so are the phenomena presented by living protoplasm its properties;" and the difference between them, in fact and principle, is the difference between Life and Death—between a Demosthenes moving a nation by his reason and eloquence, and a corpse dressed for its burial. We grant that the inmaterial qualities of the dead protoplasm—mechanical, chemical, electrical—are the same as in the living; but the phenomena demonstrates that there is a something in the one that is not in the other, and that we call Life.

As Mr. Lewes comes in sight of the wreck of Prof. Huxley's philosophy, he shifts sail by the use of the word CONDITIONS, and steers around this rocky reef, and on the farther side of the danger keeps on in the same direction, intending to make the same port. An organism, he teaches, is more than a mechanism, more than the aggregation of physical properties, more than all chemical forces combined together; over and above all these, and as an addition to them, he adds the "CONDITIONS," and, as the synthesis of the

organism, he calls them Vitality! The difference between Huxley and Lewes may be thus expressed: Huxley teaches that Matter generates, as phenomena, Life and Mind; Lewes, that Matter—a single essence—and a something unknown and indescribable, which subsists between its parts and in its environments, and which may be called CONDITIONS, are, or generate, Life and Mind as phenomena. Life is therefore only a name given to phenomena of unknown origin in self-organized Matter.

In his large volume, entitled “The Physical Basis of Mind,” it will be noticed that Mind long since disappeared. Mind, on the start, dropped down into mere Sensibility, Sensibility into Feeling, and then all problems of Mind became problems of Vitality, and Vitality disappeared behind the unknown CONDITIONS of the organism.

§ 7. Relation of Body and Mind.

In the chapter on the relation of Body and Mind Mr. Lewes puts forth a special, a supreme, and a last attempt to make them one, by engulfing the latter in the former. “Mind and Body,” he says, “however contrasted, are both simply embodiments of experience; that is to say, are MODES of Feeling. All existence—as known to us—is the Felt.” By ignoring thought, reason, judgment, and man’s entire moral nature, and seizing upon Emotion as the Mind proper, he is able to associate it with a physical sensation, and

find a kind of unity in feeling. Can Mr. Lewes suppose that such treatment of this subject will lodge the conviction in any fair mind that his conclusions are valid?

We refuse to go further without stopping to inquire, What has become of Intellect? He grants that, by an appeal to consciousness, the decision is inevitable that "a radical distinction" of some kind exists between Mind and Body; but insists that this "radical distinction" implies no more than a "contrast of aspects." The "aspects" are explained as meaning the same thing "apprehended through different modes"—they are both "modes of consciousness." He proceeds: "Sensation, avowedly, lies at the basis of mental manifestations." The truth of this statement we deny. The actions of Mind are often manifested to its own consciousness, when Sensation has nothing to do with it. Sensation is not in any way the base of mental operations—they are its helps at times. A pure and complete sensation implies the action of both a sense-organ and the Mind, and mental action is common to all sensations, and gives to them unity in Mind. The Mind cognizes the purport of the physical impression made upon the sense-nerve, and the knowledge thus derived is a sensation. When Mr. Lewes substitutes for the cognizing Mind "the reaction of the whole organism," he deals in the purest fiction. It is by this easy and cheap shift that he gets rid of Mind proper, and retains only a react-

ing physical organism. A sensation, reacted upon by "the whole organism," is both Body and Mind! Such is our author's doctrine, and we think we have presented his meaning clearer than he made it himself.

The healthy human Body is confessedly an organic unit, each part of which, acting in harmony with all other parts, contributes to the general result. Between the eye, the ear, and other sense-organs, and between the heart, the lungs, muscles, nerves, blood, and bones there is no conflict, no collision—all is harmony. The organs are all correlated to the office they were to fill and to each other. The body is an organic unit, and *reaction in a unit*, one part smiting another, is an impossibility. Where there is reaction there must be Duality; one substance or unit acting upon another. A unit acts as a whole, and cannot react upon itself. Mr. Lewes supposes that when one of the sense-organs is affected from without, and a sensation has commenced, that "the whole organism" reacts upon it—the organ—and completes the sensation. That is to suppose that a unit may have diverse and contrary parts; that double and conflicting purposes may prevail, and that it may be the theater of an internecine war. Mr. Lewes reaches his conclusion only by the destruction of the Body as an organic unit; and if man possesses a Dual nature, seen under two aspects, the Mind is dismissed and the Body divided. In the supposed action and reaction, which goes on within the organic unit, we have an explanation of what the

author means by the two aspects of the same thing. For the sake of unity, variety, and identity, he accepts this the grossest of absurdities. In getting rid of Mind he is compelled to divide the Body, so as to give to it two "aspects" having nothing in common, being "radically different," the parts acting and reacting upon each other.

Referring to the difficulties his argument has had to encounter, he says: "Although for many years I have accepted the hypothesis of Monism, I have always recognized its want of an adequate reply to such objections. Unless I greatly deceive myself, I have now found a solution of the main difficulty, and found it in psychological conditions which are perfectly intelligible." If the conditions are "perfectly intelligible," why, in the name of reason, we inquire, have they not, at some stage in this long discussion, been explained to us? What is there in the conditions that initiates the organism? Why in the same environments is one organism initiated rather than another? What is the peculiar condition which causes the vast differences between organic and inorganic Matter? Why, in the absence of Life, cannot either nature or genius hit upon the "perfectly intelligent" conditions so as to produce some kind or order of Life. As our chemists understand the conditions on which the "cell" is formed, why cannot they make a cell that will live? What is the difference in the conditions, when in one case a thought is the result of an organ-

ism, and in the other a crawling worm? And in the conditions what is there that can be seen or known which connects them with results? Not one of these questions can Mr. Lewes answer, and any one of them, and a score more that might be asked, unanswered, leaves this philosophy a baseless fabric.

We have now the arguments of Bain and Lewes in behalf of Materialism—the strongest ever given to the world—and find no essential difference between them. Each selects his facts, has his peculiar way of reasoning, and neither would accept the representation of the other; we imitate the example of both, and with emphasis reject their arguments and retain our firm grasp upon Vitalism.

CHAPTER XI.

THE SHORTCOMINGS AND ABSURDITIES OF MATERIALISM.

“If we compare the teachings of our books with what nature is constantly showing, we find there is no agreement between those two sources of learning.”—BROWN-SEQUARD.

§ 1. The Subjective and Objective in Thought.

IN the conscious thought and feeling *I am*, the subjective and objective, are one and the same. A sensation is both subjective and objective, resulting in one apprehension. With these exceptions all knowledge is either subjective or objective, never both. Psychology is the subjective intuitional science, all others are objective and inductive. The subjective thinker and things knowable embrace the realm of knowledge. To unite the subjective thinker and the not-self objective known is to annihilate either the one or the other; to do the first results in Materialism, to do the second in Idealism, and brings upon philosophy intellectual chaos.*

* Though the subjective thinker and the object thought meet and most intimately unite in Sensation, and we may not be able to draw the line which separates the one agent from the other, yet we are not to think of them as having become one. The sensation is a unit, recognized as such by perception, composed of indistinguishable subjective and objective properties. This relation between the ob-

In some form the recognition of Duality is a necessity of thought, recognized and acted upon by all parties—"indispensable in Science," says Mr. Lewes. Mr. Herbert Spencer accounts for consciousness on the ground that chemical changes have taken place in the substance of certain nerves, and that nervous sensation and consciousness, as phenomena, are "the inner and outer faces of the same change." In his philosophy Duality is a two-“faced” something. Lewes regards Duality as the Body in two aspects, one capable of acting upon the other: Bain, as a something, which by "fits" is both "Mind and Body." These indefinable and unpicturable conceptions are formed, not because the facts of nature suggest them, but because it is impossible for materialistic arguments to proceed except in this order.

Vitalists lay down their platform of Duality in a very simple and natural way. The word Mind is used as the cause and symbol—as a spirit-substance—which is the base of a group of phenomena closely related to each other, but which cannot, either in thought, imagination, or language, be identified with the phenomena of Matter; and they use the term Matter to symbolize another group of phenomena, closely related to each other, as if sprung from a common

jective and the subjective continues only while the sensation lasts. Man, as an individual self, is, to an external world, ever the one person and nothing more; and the world, external to him, is the same, *per se*, whether he exist or not.

basis, and which, in no particular, manifest the least kinship with the phenomena of Mind. They assume for each class of phenomena a separate, substantive, self-centered, unitary cause. Of the nature or essence of the substance called Mind, they have no knowledge, and can form no conception; of the nature or essence of the substance called Matter, they are equally ignorant. Beyond phenomena and their necessary substantive causes in neither field of thought is it possible to take a step.

From the fact that, in no one particular, can the two classes of phenomena be made to blend, the deduction seems to be inevitable, that each has a separate basal cause of its own; as all the knowing is in the Mind, it is subjective, and as in Matter there is no knowledge nor consciousness, it is objective and known.

The proof we have that the Mind is substance endowed with properties and forces of its own, is of the same kind, and of equal if not superior strength, to the proof we have that Matter is an objective substance, endowed with properties and forces of its own. The word stone is used as the symbol of a group of necessary phenomena; the essence or essences of which are unknown. The word diamond symbolizes a peculiar group of phenomena, and we may say they are the necessary expression of crystallized carbon, but of the nature of the carbon we can form no conception. The word sheep is used as a

symbol of a very different class of phenomena, but all we can know of that animal is what is presented in its phenomena—the phenomena prove the facts of its existence. The word Mind is used to symbolize our ideas of perception, reason, imagination, memory, understanding, thought, or thinking, will, love, hate, joy, sorrow, and remorse; but the nature of the essence or substance of which the word Mind is the symbol we know nothing. It is a necessity of thought that for the phenomena of both classes and orders of being we postulate distinct substantive causes, else mind soars in a vacuum, and especially is the logical faculty left without support. Vitalists recognize the existence of a substance of the spirit-order with which mental phenomena agree; also Material substances with which their phenomena agree. Mental phenomena they cannot associate with a material base, nor material phenomena with a mental base; nor is it possible for even the Materialist, by clear thinking, to do either; for Materialists are as fully subject to the laws of thought as their opponents. Monistic philosophy recognizes but one substance, having by "fits," two "faces," two "aspects," at one moment "Mind," at the next "Body." Such is the ground occupied by Bain, Spencer, Lewes, and others. As the first step in the study of Mind and Body the distinctions, subjective and objective, must be fixed and clear in the argument and never lost sight of for a moment.

I think of the thoughts, the feelings, and purposes I have had, as of acts performed, and they are objective. The subjective self thinks of them as objects of thought. "In the philosophy of Mind," says Sir William Hamilton, "subjective denotes what is to be referred to the thinking subject, the ego; objective, what belongs to the object of thought, the non-ego."

All the goings forth of the Mind, such as perceiving, comparing, reasoning, thinking, imagining, determining, loving, hoping, and desiring, are to be classed as subjective activities, whereas the things external on which these activities are expended are to be held rigidly in the objective.

Sir William Hamilton says, further: "Objective means that which belongs to, or proceeds from, the objective known, and not from the subject knowing; and this denotes what is real, in opposition to that which is ideal — what exists in nature, in contrast to what exists merely in the thoughts of the individual."

Consciousness extends to every part and act of the subjective, and observation has nothing to do with it; its field of action is the external world, or the not-self. Whatever perception and conception are to things not ourselves, consciousness is to things within us; and it is in consciousness that the external or objective world is known as a reality—known as a fact; for we comprehend but little that it contains. There can be no conscious, subjective act, which does

not awaken a further consciousness of an object—the self—a thought, a feeling, a purpose, or something else external to itself.

Sciences, such as Mathematics, Chemistry, Anatomy, Geology, together with all the philosophies of which they are the bases, are in the objective; Psychology takes us away from the objective, and confines thought and consciousness to the subjective self. The mental phenomena of others become objective to us, and are available as aids to a broader and better understanding of humanity. It is likely that no two persons possess the same mental structure; and yet man is but one species, and, fundamentally, humanity rests upon the same basis. We are but different editions and prints of the same book.

The moral and mental structure of others we can always safely study in the light of our own consciousness. The subjective self, whose consciousness is active, and takes note of every mental act, and discriminates sharply between one feeling and another, is the Psychologist; but when we leave the study of Mind itself, as the ground and cause of mental phenomena, and mix thought, will, and feeling with molecules, tissues, the white and gray Matter of the brain, blood, and nervous sensations, or with any thing objective or material, then the reign of chaos begins. Here we encounter one of the many gross and misleading absurdities of Materialism; it unites and confounds the subjective and the objective in a

unit of substance, and renders a correct understanding of either impossible.

Mind is correlated to truth, and its structure is logical. The science of logic is but the formula of legitimate mental operations. When Mind and truth are in proper relation, clear and easy thinking is the result. When Mind undertakes to think a thing as it is not—as to think of a circle being in figure a square—it finds it impossible to form the conceptions, and the inflexible facts render the Mind powerless to proceed. A form of expression may be constructed which, at one or more points, will touch the case, and we may be asked to accept this clog of words as the luminous symbol of a truth ; and such is the ground occupied by Monists, whether Idealists or Materialists. The keenest wits that live, or that have lived, have taxed their genius and their language to the utmost to conceive and set forth material and mental phenomena as being the direct outcome of the same basal cause. Prof. Bain's eoneception of change by alternate "fits" has not been accepted as truth by any other Materialist. Herbert Spencer's idea of a "two-faced" nervous change, to be contemplated from its "insides" and "outsides," signifies nothing, or any thing you please. Lewes's two "aspeets," one a "sensation," causing the "re-action of the whole organism," gives no clear idea of any thing. The attempt to recognize the subjective and the objective, in either Mind or Body, is to utterly destroy the one or the other, or to

mutilate and horribly disfigure the whole man beyond recognition. What conception can we form of Huxley's protoplasm, “living or dead,” it is “the same thing?” What is it, in itself, if it can be either “alive or dead,” with no essential change, and still be perfect protoplasm? What his words imply no mind can picture as a part of nature. That the same unchangeable substance which can neither lose nor acquire new properties, should be the basal cause of two wholly different sets of phenomena—phenomena which cannot even be conceived to have any thing in common—is an incongruity which cannot be wrought into a rational shape in the Mind. As a whole, the Mind cannot grasp it—it is unthinkable. The conception is made up of the odds and ends of different and adverse things, and the laws of clear thinking, which are the laws of logic, tend to disperse, rather than bring together, such incongruities.

§ 2. *The Process of Making a Unit of Body and Mind.*

Let us for a few moments attend upon Mr. Lewes, as he wrestles with this problem. He says: “The only rational question is one of preserving the integrity of the terms, namely, whether the living, thinking organism presents itself to apprehension under the twofold aspect—now under the modes of feeling classified as objective or physical, now under the modes classified as objective or mental.”*

* “Physical Basis of Mind,” p. 387.

We had supposed that the *facts* of a case were “rational questions,” and that in representing them such terms should be used as would express them truly; but Materialism gives supreme regard to the “terms” of an argument, and not to the truth in the case. At the beginning of his work Mr. Lewes first reduces Mind to Sensation, then Sensation to Feeling, and in the above quotation Feeling is “classified as objective or physical.” Thus a something—what is it?—assumes the “aspect” of the physical, and then the “aspect” of the mental, and often this something presents at the same time both “aspects.” This something can be, can cease to be, and can be again, and can be of different “aspects” at the same time! But what *is* this monstrosity that is thus endowed?

Again: “The abstractions, Matter and Mind, once formed and fixed as representative symbols, are easily accredited to two different Reals. But the separation is ideal, and is really a distinction of aspects. We know ourselves as Body-Mind; we do not know ourselves as Mind and Body, if by that is meant two co-existent existents.”

Once more: “Thus, while all the evidence points to the identity of object and subject, there is ample evidence for the logical necessity of their ideal separation.”

Here we are deliberately told, by a *par excellent* scientist, that, in this discussion, “the only rational question” to be considered is, not the discovery of

facts by the observation of things and phenomena, but so to choose and regulate the “terms,” to be used in the frame-work of a wordy argument, as will most surely reach the intended conclusions. If, as a fact, the subject and object are “one” in regard to the “Body-Mind,” why is there “a logical necessity” for their unnatural “separation?” If subject and object are known to be “identical,” why cannot the logic be made to harmonize with the truth in the case? We had supposed that Mind, truth, and logic was a grand triumvirate, and that their separation brought chaos and darkness into the realm of thought.

Here are two parallel lines of thought, one real, composed of facts, and true; the other “artificial,” “ideal,” expressed in carefully selected “terms;” the first establishes Vitalism, the second Materialism. It appears that the assumed facts—the “identity of subject and object,” Body and Mind—cannot be made to harmonize with all other facts in the case, and this discrepancy is to be remedied by the “logical artifice” of an ideal separation which shall “preserve” the “integrity of the terms!” Would Mr. Lewes have made these admissions except under a dire compulsion?

Such shuffling expedients “to preserve the integrity of the terms” of an argument, are of themselves enough to condemn any cause which demands it to irredeemable contempt. And of this very procedure Mr. Lewes says: “Our conceptions of this

reality, however, are expressed in symbols representing different classes of feelings, objective and subjective, and to employ the terms of one class to designate the conceptions of the other is to frustrate the very purpose of language."

Of what value, then, are the arguments which uphold the claims of Materialism, since they are based upon the "identity of subject and object," and the very "purposes of language are frustrated" in this attempt to preserve the "integrity of its terms" in viewing them as "objective and subjective?" Can the nineteenth century accept conclusions so momentous as those involved in Materialism, when it considers that their only support is an argument fictitiously put up for the purpose?

§ 3. *Materialists confessedly use a False Terminology.*

Certainty and clearness in science demand that such terms be used as express exactly the writer's meaning. The imperfection of language, but far more the careless use of it, have greatly retarded progress in knowledge. It seems incredible that a respectable school in philosophy should, without the least disguise, in a wholesale way, set aside a usual and well-understood terminology, and substitute for it another just the opposite; but let the following quotations from Lewes, Huxley, Tyndall, and Spencer vindicate the truth of our charge. We begin with Mr. Lewes: "Vital facts, especially facts of

sensibility, have factors neither discernible in mechanics nor expressible in mechanical terms. We cannot ignore them, although, for analytical purposes, we may provisionally set them aside.”* That is, in order to frame an argument in support of Materialism, the “vital facts,” that is, the Life and Mind of man, because their phenomena cannot be expressed in terms of “Matter” or “mechanics,” must be “set aside;” this slight affair being “provisionally” attended to, on the basis of what is left—the body—the “analytical purpose” of reaching a Materialistic conclusion can be accomplished. The violence of “setting aside” the main factors which go to make up a conclusion touches keenly the logical sensibility of Mr. Lewes, and he puts the case differently, as follows:

“The question is: Can we translate all psycholog-ical phenomena in mechanical terms? If we can we ought, because these terms have the immense ad-va ntage of being exact, dealing as they do with quantita-tive relations.” Mr. Lewes confesses that this “art-i-fice” cannot be made to succeed, and the only way to get along with the argument is to “set aside” the vital phenomena of all living creatures and argue the case out with what is left. He says: “The objective interpretation of vital and mental phenomena has the incomparable advantage of simplifying research, keep-ing it fixed on physical processes, instead of being per-turbed by suggestions of metaphysical processes.”

* Page 361.

Yes, exactly ! "Set aside" "all vital and mental phenomena," consider only "physical processes," and the investigation of the problems of the "Physical Basis of Mind" will be greatly "simplified, and materialistic conclusions easily reached. Or, as a means of avoiding this "provisional" work of "setting aside" vital phenomena, why not take a clod or a wheel-barrow; for the analysis of them will give materialistic results without being "perturbed" by "metaphysical suggestions." The argument will parallel the following: A stone is pure Matter, therefore man has neither a vital nor mental being.

But of what value is this philosophy considered as an exposition of the real nature of the whole man? Mr. Lewes seems to have felt that it possessed but little force; for he adds: "While it is necessary to keep the investigation of a process on its objective side limited to objective conditions, and to express the result in objective terms, we must remember that this is but an artifice; above all, we must remember that even within the objective limits our analyses are only provisional, and must be fully rectified by a restoration of all the elements we have previously set aside." This means, that in the solution of the problem of Mind and Body we may throw out on the start the mental factor, and reach a conclusion by an examination of the body, and then by some means bring back this displaced factor. If the author meant that Physiology should be examined in the light of

its own facts, inductively as a distinct and complete science, and that Psychology be studied intuitively, and that together they should be made to explain the phenomena of Mind *and* Body, his “process of research” we should commend; but he does not mean any such thing. He regards man simply and solely as a Material organism, and Mind is the “reaction of the entire organism” upon an impression made upon a sense-organ. The sensation is one “aspect” and the “reaction” the other “aspect” of the same substance. The reaction is the objective “aspect;” that alone is to be considered, and at every step a materialistic terminology is to be used. How the false conclusion, which is inevitable because of the rejected factor, is to be “rectified” by its “restoration,” is one of the mysteries of materialistic reasoning our author does not attempt to explain. He contents himself by saying: “The separation of the objective mechanical from the subjective psychological is a logical artifice, indispensable in research, but it is only an artifice.” Why resort to a truth-disfiguring artifice? It is done professedly that vital phenomena may be expressed in “mechanical” “terms”—that is, wholly ignored. We should certainly be obliged to Mr. Lewes for revealing to us so fully his fraudulent method of argumentation, and in the future, when we are presented with vagaries for facts, half-truths for whole truths, figments for observed verities, we shall treat such things patiently, as “logical artifices” “indispensable

to research" into the mysteries of the Positive Philosophy. Mr. Lewes once more: "All *physical* facts are mental facts expressed in objective *terms*, and mental facts are physical facts *expressed in subjective terms*." (Italics his.) We will assume that this statement is intended to express the truth, and that it is not a "logical artifice." Let us, then, try it, and see if there is any truth in it. That the pyramid Cheops, built ages ago of huge rocks, at an expense of one hundred thousand lives, still stands in Egypt, is a "physical fact." Does *thinking* of this "fact" create another and a parallel pyramid in my mind as a "material fact?" Have I more than an idea of it? Again, I think of a tree; that thinking, as a mental act, constitutes a "mental fact." Is, then, the subjective self thinking identical with the objective tree of which I think? So teaches Mr. Lewes. But this mixing and identifying the subjective and the objective, the mental and the physical, in carefully selected "terms," may be only an "artifice" "to set aside" all vital and mental phenomena, that the argument may not be "perturbed" by any thought of Spirit or Mind.

§ 4. *Materialism finds an Antagonist in the Inflexibility of Language.*

We will now look at the absurdities of Professor Huxley's terminology. He says: * "In itself it is of little moment whether we express the phenomena

* "Lay Sermons," English edition, p. 145.

of Matter in terms of Spirit or the phenomena of Spirit in terms of Matter." [This carefully worded parallel of vital with materialistic terms is but a tub thrown to the whale.]

"Matter may be regarded as a form of thought; thought may be regarded as a property of Matter; each statement has a certain relative truth. But with a view to the progress of science, the materialistic terminology is in every way to be preferred. For it connects thought with the other phenomena of the universe, and suggests inquiry into the nature of those physical conditions or concomitants of thought which are more or less accessible to us, and a knowledge of which may in future help us to exercise the same kind of control over the world of thought as we already possess in respect to the material world; whereas the alternative of a spiritualistic terminology is utterly barren, and leads to nothing but obscurity and confusion of ideas. Thus there can be but little doubt that the further science advances, the more extensively and consistently will all phenomena of nature be represented by materialistic formula and symbols."

We respect Mr. Huxley for letting us know exactly what he thinks. Strange that the "utterly barren spiritualistic terminology" should have found its way into all languages and all hearts. But Mr. Huxley is Matter intoxicated, and terms of vitality serve as a check upon his intellectual revelries. Banish such "utterly barren" terms as spirit, mind, soul,

consciousness, intellect, reason, thought, will, conscience, and immortality from language, and substitute for them the terms "aspects," "conditions," "mechanism," "affinity," "molecules," "protoplasm," "shocks," "thrills," "nerve currents," "reactions," "cells," "stimulants," "irritations," "pinches," and the prospects for the triumph of Materialism would be increased. Language is a growth, rooted in the heart of the people using it, and fed and nourished by their inmost and deepest thoughts, longings, and hopes. To change essentially a nation's language implies that the thoughts, the feelings, and inspirations of the people be changed. Touch man's mental structure, transform and essentially modify the elements of humanity, and, as a result, its language will be modified accordingly. Language is fruit, and as is the tree, so will be its fruit. In the impulses of man's heart and in the inflexibility of language truth finds an impregnable fortress.

Mr. Huxley's cool proposition to do away with all terms of Life and Mind is a confession of the absolute helplessness of his cause. Should we permit him to dress up the royal heir of immortality in his dirty rags, it would speedily shake them off, and cast them, in disdain, at his feet. The nature of the case forbids compliance with his demand; for Mind will remain Mind, call it by what name you will. It is not only the terminology but also the underlying facts of nature that plague Materialists. But really, in

proposing to apply to Life and Mind a materialistic terminology, does not Mr. Huxley unconsciously meditate a fraud, a cheat? Does he not, like Mr. Lewes, propose to "set aside" or throw out the only important factor in the great debate that he may be at liberty to "inquire" solely into the assumed "physical conditions of thought," as its only conditions? We should not object to the study of Body and Mind, their relation, and reciprocal influence; but we do protest against clothing mental phenomena with a materialistic dress as its only and proper garb.

§ 5. Prof. Tyndall Wrestling with the Constitution of Matter.

Far more consistent than Lewes and Huxley, Professor Tyndall would not only change our terminology, but he would go deeper and "radically change our notions of Matter" itself. But he will find that a difficult thing to do. In all truthful thinking Mind is subject to the law of necessity. Call gold by what name we may, we are compelled, by its changeless qualities, to think of it as we do. Our notions of Matter are fixed by its properties, and nothing but the change of its constitution can alter them. He says: "Believing as I do in the continuity of nature, I cannot stop abruptly where the microscope ceases to be of use. Here the vision of the Mind authoritatively supplements the vision of the eye. By

an intellectual necessity I cross the boundary of the experimental evidence, and discern in that Matter which we, in our ignorance of its latent powers, and notwithstanding our professed reverence for its Creator, have hitherto covered with opprobrium, the promise and potency of all terrestrial life.”*

Mr. Tyndall does not specify the change he would have effected in our notions of Matter, unless it be in regard to its “latent powers.” Would he, then, in the “new definition” that is to be framed of Matter, simply ascribe to it vitality, as a “latent power.” What, then, shall we do with his repeated declarations that the “proof of spontaneous generation is wholly wanting,” and that “Life was never known to come except from demonstrable antecedent life?” But since the hypothetical “latent powers” are “beyond the boundaries of the experimental evidence,” and in no way give the least evidence of their existence as a property of Matter, we can regard them only as a chimera—a mere fancy; and on a subject of so grave importance as this, Intellect must have a firmer support or cease to act.

§ 6. *Herbert Spencer’s Terminology.*

Mr. Herbert Spencer, in his “Principles of Biology,” gives us the key-note to his terminology as follows: † “The interpretation of all phenomena in terms of Matter, motion, and force, is nothing more than the

* Belfast Address.

† Page 391.

reduction of our complex symbols of thought to the simplest symbols, and when the equation has been brought to its lowest terms the symbols remain symbols still."

We desire to deal fairly with these great philosophers, and if the above statement defined the Materialism of the Positive Philosophy it would amount to little more than mere logomachy, with which we should spend but little time; but we are told again and again by Huxley, Ferrier, Tyndall, Bain, Lewes, Buchner, Maudsley, and many other responsible authors, that man is Matter—a unit of Substance, and that Life and Mind are mere results—transient phenomena. Were we unable in any one instance to discriminate between nervous sensations and psychical feelings we might admit that they were of a class and had a common origin; but the distinctions between them are so sharp and so numerous that they form two distinct currents of thought, running parallel in time but never mingling into one. To describe consciousness and the act of reasoning in terms of Matter, as Mr. Lewes says, is "to frustrate the very purposes of language."

§ 7. *Inorganic Matter pressed into service as Organic.*

Materialists confound colloid substances, crystallization, and geological deposits with vital growth. Real vital growth is the gradual increase of animal and vegetable bodies. The development being from a

seed, germ, or root, to full size and maturity. Only in a loose and metaphoric sense can growth be applied to non-living bodies. In his "Principles of Biology" Mr. Herbert Spencer says:

"Perhaps the widest and most familiar induction of Biology is, that organisms grow. While, however, this is a characteristic so habitually and markedly displayed by plants and animals as to be carelessly thought peculiar to them, it is, really, not so. Under appropriate conditions increase of size takes place in inorganic aggregates as well as in organic aggregates. Crystals grow, and often more rapidly than living bodies. When the requisite materials are supplied in the requisite forms growth may be witnessed in non-crystalline masses; instance the fungus-like accumulations of carbon that takes place on the wick of an unsnuffed candle. On an immensely larger scale we have growths in geological formations; the slow accumulation of deposited sediment into a stratum is not distinguishable from growth in its widest acceptation."

According to this idea of growth, it might be said that a mass of ice in a freezing rain grows larger, and in the hot sun it grows, but grows smaller. Again, Spencer says:

"Around a plant there exists certain elements that are like the elements which form its substance; and its increase of size is affected by continually integrating these surrounding elements with itself. Nor does

the animal fundamentally differ in this respect from the plant or the crystal." Tyndall says:

"But I must go still further, and affirm that, in the eye of science, the animal body is just as much the product of molecular force as the stalk and ear of corn, or as the crystal of salt or sugar."

We should be amazed at these statements if we had not long since become proof against the force of such absurdities. Accumulations of Matter always take place from without, upon the surface of non-living bodies, but in no case is such the growth of living organisms. In vital growths the Life is a central power; new particles of nutriment are brought under its organizing influence and become bioplasm; the bioplasm passes forward into formed Matter, and gradually makes its way to the surface as new molecules internally take their place. What is now the bark of a tree was once living Matter at the centers of activity; the matter of the craggy shell of an oyster was once the substance of the living mollusk; and the Matter of the wool on a sheep's back did not snow down from above, but passed from the central organs of the animal to the circumference.

Dr. Lionel Beale says, that in vital bodies growth is produced as the result of a continuous movement from the center to the circumference, whereas nothing of this kind takes place in mere accumulations of Matter.

If the phenomena of growth proper could be iden-

tified with the heterogeneous accumulations of stuff forming geological deposits, etc., a strong point would be made against the necessity of vital agency in the structure of organisms. Between an apple that grew on a tree and an apple made of wax by a lady's skill, we may see the gulf that yawns between Life and Death. The phenomena in the one case point to an antecedent Life, and in the other to mechanism. The Life was the initiating subjective, the apple the objective result; in the case of the wax ball, the lady was the initiating subjective, and her imitation of the apple the objective result. Though in appearance the one substance may exactly resemble the other, yet they have nothing in common.

The assertion that vital growth and the "fungus" accumulations on candle-wicks mean, fundamentally, the same thing, subjects the philosophy in whose behalf it is made to the gravest suspicions.

§ 8. Materialism Draws Conclusions from Unresolved Factors.

It professes to deal exclusively with physical phenomena. Ontology, or metaphysics, as a science, is utterly repudiated. Causes, efficient or final—purposes, or principles of action—are unknown and inscrutable. The basis of the Positive Philosophy is narrowed down to a relation; to knowledge of phenomena, and to such knowledge as has been attested by experience. And, negatively, Materialists assume

the non-existence of the universe outside of their knowledge and methods of inquiry. The range of their senses is the scope and measure of all truth and reality. As a consequence of occupying so narrow a basis the champions of this philosophy are constantly transgressing their own canons of thought and laws of research. As a further consequence, they are compelled to follow each other in the same ruts, and make the most unwarranted deductions from the material they can command. They speak learnedly of "nerve force," of "nerve currents," "nerve crossings," "nerve growths," of "protoplasm," "molecular groupings," "conditions," and "motions," of "chemical affinity and mechanical force" in the organism; and, on the basis of their ignorance of what these expressions mean, if they mean any thing, they deduce all mental and vital phenomena. But if their assumptions in regard to nervous functions and agencies were all known to be true, their inferences in regard to vitality and thought, as results, are wholly unwarranted. "The problem of the connection of the body and soul is as insoluble in its modern form as it was in the pre-scientific ages." So says Prof. Tyndall. Mr. Lewes says: "We are ignorant of one or more of the indispensable conditions symbolized in the abstract terms Vitality or Vital Force;" and this is an admission that physical considerations do not explain every thing, and to him the problem remains unsolved. We feel ourselves forced to assume that the

“indispensable condition” wanting, concerning which Mr. Lewes confesses “ignorance,” is a vital substance, and that it can be nothing else. What authority or force can there be in the assertion that “in matter” may be found “the promise and the potency of all terrestrial Life,” since it is admitted that we are ignorant of indispensable elements? A superb conclusion considering its foundation, Materialists themselves being judges!

§ 9. *It is pure Fiction that Vitality and Thought are Cerebral Phenomena.*

The white Matter of the brain differs but little in substance from the white part of an egg, and the white of an egg, with a little powdered charcoal mixed with it, is in composition nearly the same in constitution as the gray matter of the brain. These substances are, confessedly, as far removed from mental phenomena as the dirt on which we tread. But in the one case this Matter has organized itself into a brain structure, and in the other it is merely inorganic Matter. Very well, yet Matter, in essence and properties, experiences no change in its transfer to an organic body. Whatever characteristics it manifests as organic which it did not possess as inorganic, is due to something utterly unknown to Matter. In the absence of Mind, nothing can come from the brain which had not, potentially, a previous existence in its Matter as inorganic. Nothing can appear as an

effect which was not an existent in its cause. If vitality, thought, and feeling are phenomena of the brain-mass, then they have some sort of an existence in albumen and carbon. Oxygen and hydrogen, by union, give us water, hence the substance of the water must have had its equivalent of weight and properties in its constituent elements. In this case, the transition from cause to effect and from effect to cause is easily made. But the transition from brain to thought and from thought to brain is not only unknown, but it is not even thinkable, Prof. Tyndall being the judge.

Materialism, as a philosophy of nature, tested by logic and illustrated by experience, is too narrow and too restricted in its fundamental elements and the scope of its reasoning to constitute a solution of the problems the Mind is most anxious to understand. In regard to the constitution of Matter it has taught us nothing. Sir Wm. Thompson, Maxwell, Tait, Dr. Beale, and other Christian writers, by their genius and industry have, within a few years, greatly enriched physical science by their discoveries. During the years that Dr. Bastian was spending his time and labor to no purpose, in the vain attempt to bring about spontaneous generation, these men were busy in developing and manipulating the forces which really pertain to Matter. This philosophy has lead to no discovery by which the world has been benefited. The mysteries which hung over the essence

of Matter years ago still continues. In regard to the origin, the nature, and the end of things, it affords not a ray of light. To Materialism the existence of the organic world must forever remain an “insoluble mystery ;” its attempted solutions are a travesty on reason and common sense. Its account of Mind and consciousness the inward experience of humanity must condemn.

Materialism is quite as Agnostic as Positive in its teaching. It recognizes no part of the universe but the sensational and the mechanical ; as if five human sense-organs were the measure and the counterpart of the universe. Its Agnosticism embraces Atheism as but one of its elements. According to its ethical canons and mechanical principles, man is not a responsible being ; the terms right and wrong, vice and virtue, fade out into nothing ; conscience is but a nervous sensation, and government has no moral support.

Materialism is a philosophy of negatives and destruction. In its wake it leaves nothing but Matter and mechanical law. Beneath its burden of absurdities, excesses, and shortcomings, many of its champions will probably live to see it go staggering to its fall.

CHAPTER XII.

MONISTIC PHILOSOPHY.

“ Consciousness, so far from revealing only our own existence, and leaving us to gather all other existences by *inference* from this, cannot give us the percipient *self*, except in simultaneously giving us the perceived *other than self*.”—JAMES MARTINEAU.

§ 1. *Idealistic Monism.*

AS our argument now stands, there is no possible way of escape from its conclusions for any form of skepticism which pretends to be based upon the constitution of nature, except that which is afforded by Idealism.

Monism assumes that but one substance exists in the universe, and that the one has become all—that the simple has become the complex universal. The fact that even an easy-going mind at a single stride can pass from premise to conclusion of this hypothesis, and then firmly hold the entire process in its grasp, has a suspicious look, suggestive that there is not much of it.

Materialistic Monism holds to the hypothesis that the universe is composed of a single substance—Matter—and the notion that hydrogen, as the base of all kinds of Matter, is this substance is not yet aban-

doned, though not a particle of proof can be found for its support. The Universe of Materialism—what is it? Self-existent hydrogen governed by law!

But there is another Monistic school of thought in the field; it, indeed, holds to the fashionable philosophy of the day called Idealism, and its deliverances must receive brief but special attention. Materialism and Idealism, differing mostly in the substances they use in the cosmical structure, assume the existence of an absolute; the Materialist finds this absolute to be Matter, the Idealist finds it to be God. Having paid our respects with becoming courtesy to the Materialist, we must not pass the Idealist by without further notice. This philosophy demands consideration not only because it denies the existence of Matter, but because, with equal emphasis, it denies the existence of Life, whether vegetable, animal, or human. Hence, if this conception of nature is found to be correct, the vital universe is abolished, and our long argument is of no avail.

§ 2. Idealists Permitted to Explain their Doctrine.

Among different shades of Idealism this form of Monism assumes Protean shapes, and we doubt if two responsible advocates can be found who in their teachings agree; and, still further, we doubt if a single author can be found who agrees with himself, or who can so define his doctrine as to give consistency and unity to all its parts.

The absolute Idealist contends that we can know nothing beyond the existence of impressions and ideas. I take in my hand an orange ; I feel it, I taste it, I smell it, I see it : and, through each of these senses, I receive a specific impression ; these impressions suggest ideas ; and of the impressions and ideas I am certain, but I know nothing more. On the basis of these impressions I am not entitled to say that what I called an orange is any thing, and because I do *not know* it as a thing, therefore it is a nonentity. Impressions and ideas come to me apparently from other sources, but all I know, and all I am entitled to say, is that they exist ; and I can derive no knowledge from them of the existence of an external world beyond myself. The sting of a hornet is no proof that such an insect exists. I am not allowed to say even that a substantive mind exists on which these impressions are made. The things which we conceive to exist without, or external to us, are nothing but *effects in us*. How these effects are produced must remain a mystery. Even consciousness of existence is denied us, and there is no data on which we can logically base the conviction that other beings or things exist. All our mental states, all our experiences, whether of Mind or Body, can be accounted for by invoking the aid of metaphysics, on the ground of the non-existence of any person or thing external to us.

But if by the laws of spontaneous thought we feel

compelled to recognize in some way the existence of persons and objects external to ourselves, they as illusions, phenomena, or appearances must be so explained as to be divested of all substantive reality. It is said, by an authority on this subject, that "God is the cause of causes, and the true objective ground of our changing states." In passing from a cave to a mountain top, or from a battle-field to a garden, a variety of impressions and ideas would be awakened in the mind, and this experience called "changing states" has God for its author, or "objective cause." In the rocks and ground we pass over—in the vegetation, birds, and animals, we may see—in the ghastly human forms and pools of blood which may shock our sensibilities as we pass over the battle-field—we must not recognize any thing real, but simply affections *in ourselves, produced* immediately by the agency of the Infinite One. Idealistic Atheism gives no account whatever of the origin or cause of impressions and ideas. But even on the theory of Objective Idealism our confidence in the validity of our knowledge of even objective appearances does not arise from the trust we have in our knowing faculties, nor in the intentional correlation of Mind to truth, but in a blind faith that God has not maliciously made fools of us.

Bald Subjective Idealism, which recognizes nothing but ideas and impressions, is too much—too barbarous an outrage upon common sense, and a large class

of Idealists have repudiated it, and accepted what they fondly conceive to be something more, in appearance, substantial. A genuine Realist holds that the elemental atoms are *true things*, and self-centered *sources* of energy; that the number and variety of substances, vital, mental, and spiritual, which go to make up the universe, surpass all comprehension; that each is endowed with properties and forces of its own; and that some of these are constant factors in all changes and in all phenomena. The Idealist, with whom there is a lingering remnant of "common sense," still "thinks," as he says, "under the law of substance and attribute, or of thing and quality." . . . "Both thought and language are impossible without nouns as the independent base of the sentence. Accordingly, we tend to give a substantive form to every object of thought. . . . Indeed, every constant phenomenon tends to be viewed as a thing." Now note the Realism of this Idealist. He says: "Now the world owes its substantial existence entirely to this tendency." "This substantive character is merely the form under which certain objective activities of the Infinite appear to us. The Idealist then proposes to replace the nouns of Realism by certain constant forms of activity on the part of the Infinite. Change in things he views as a change in these forms of activity." . . . "There are no fixed points of being in the material world; but every-where there is law and order. The continuity of the system expresses sim-

ply the constancy of the Divine action." The existence of all *substantive things* being denied, this author says: "In short, the world, considered by itself, is an order of divine energizing. . . . The imagination will find more assurance of the uniformity of nature in the hard reality of the physical elements than in the purpose and nature of the Infinite; but in any case this is a fancy."

Idealists further teach that the external world, having no true being in itself, is only such an appearance as *we make it*, or as is made in us. "Light, sound, odor, etc., in the proper psychological significance, are *contributed to the world by the Mind*,"* and *apart from the Mind the world cannot exist* as luminous, resonant, odorous." We are taught that the moon cannot be inhabited; can we say it is not luminous? Without light the vegetable kingdom could not exist, and must we infer that the human Mind "contributes" luminosity to this department of Nature? May not the same kind of light produce one impression upon the eye and another upon the rose? Will geologists admit that the world was dark till man was made? But the broad ground is taken that the external world, being unsubstantial in itself, is *nothing but what it is conceived to be* by the observer. Hence we read: "The world is a great system of relations—that is, as the object of science and of all rational study—it cannot possibly exist

* Italics mine.

*apart from thought.** It has its character of speciality and interrelations *only in the Mind* and in the movement of thought.” What will geologists say to the assumption, that the world had no existence till its existence could be realized in human thought? Again: “All relations, as such, are products of thinking, and exist *only* in the act of thought.”

That in making this presentation of Idealism there may be no mistake, we will favor the reader with some of its negative postulates. A distinguished apostle says: “We hold, then, that substantive existence cannot be ascribed to the atoms. They must be viewed as elementary forms of the Infinite’s action, and they owe their substantive character solely to the fact that we think under the forms of substance and attribute. But to regard them as true things, is only an embarrassment without any compensating advantage. We decide, therefore, in place of the *substantive atoms*,* to posit a series of related *activities* in the Infinite. Such that they produce for us the *appearance* of a world of things spatially discrete.” . . . “Indeed the atom, as a form of activity, has no identity whatever. . . . Physical phenomena, on this view, are no longer referable to the atoms as their substantial ground, but to the agency of the Infinite.” “The elements, therefore, appear to us as no fixed and changeless beings, with properties which they possess in their own right, but as flowing formulas of the

* Italics mine.

Divine activity.” “The conception of Matter as something given and fixed we repudiate entirely. . . . Matter is simply a form of manifestation, of which the reality is God.” Once more: “We have found that Matter can lay no claim to a properly substantive existence, and that Spirit” (meaning the Infinite Spirit) “fills out the notion of being.”

§ 3. *Idealism Actualized.*

In the language quoted above it is stated ten times that what we call Matter, or atoms, are not substances—not real things; and it is stated an equal number of times that these things, so-called, are really nothing but the visible activities of the Infinite. If I look at the sun intelligently I will not think of it as a thing—a substance—having being in itself, and as the cause of light and heat; but I will pause reverently before it (as do the Hindus), and regard it as the “activity”—“the energizing” of the Almighty in a special way, producing in me the sensations of light and heat. All the sun there is is in my thoughts and sensations, and 93,000,000 miles away in space there is nothing, for the existence of space is denied. If I chance to see a crawling snake, I must not regard the reptile as a substantive thing, but I must think of it, and of course reverence it, as a mere appearance, and in reality as God acting in me in a certain way, simply creating the snake idea. The subjective or absolute Idealist would say, if he laid aside his common sense,

and spoke philosophically: "I have certain impressions and ideas within me, and these I call my snake experiences." The objective Idealist would say, that though the snake is nothing real, as Matter, yet it is an appearance caused by the activity of the Infinite Being, producing in me crawling sensations and ideas. If the snake be poisonous and I kill it, I simply put a quietus upon one form of the "Infinite's activity." Thus the incomprehensible variety of appearances we meet with in the mineral, vegetable, and animal kingdoms are simply various forms of definite and continuous activities, creating in me sensations and ideas. Other universe there is none!

The principles above set forth apply to the Soul or Mind of man, as rigidly as to what common sense regards the material part of the universe.

The Idealist says of the body (italics mine): "It is a *connected system of activities* on the part of the Infinite, by which the Soul is put in connection with the universe, and *furnished with the conditions of its activities*." It is not stated, and we are not authorized to infer, that the Mind is a real, self-centered substance, having properties and forces of its own.

God, then, is the sole substance in the universe, and his activities constitute the phenomenal or objective world. Not that there is any thing real external to us, but the theory is, that ideas and impressions are developed *in us* by the divine agency, which *produce* a world of appearances though nothing appears.

The activity of the Infinite is such, that in some cases it takes on the form of a finite spirit, called the Soul, and successive activities upon this primal activity creates human experience and history. Should the activity within us cease, the Soul would cease to be, and the external world would vanish. In walking there is no contact of real earth with real feet, but such language is used to describe the results of the Infinite's activity within us. In such phenomena, what we call the earth and the man walking on it, is a mere illusive appearance. Is this Philosophy mere Skepticism? Is it not absolute Nihilism?

§ 4. The Basis of Idealism.

Now let us change the line of thought, and inquire into the basis or ground-work of Idealism. The subjective or absolute Idealist commences with a definition of being, or substance. Being is something that is "universal," the "same substance" everywhere, "common to all objects, without distinctive qualities" of any kind. This definition of being can be a description of nothing but nonentity; as substance without properties, qualities, or distinctions of any kind, cannot even be conceived to exist. This conception of being is as palpable an absurdity as would be a description of a triangle which denied to it both sides and angles. Other Idealists define being as the "activity of the Infinite," attended by wisdom and purpose. One definition makes it an absolute

nonentity, the other takes from it its substantive character, and leaves an appearance where nothing appears.

Now, since we have reached the very corner-stone of this philosophy, let us pause and see where we stand, and inspect the foundation underneath us. One class of Idealists, by a purely arbitrary definition, rules the world of Matter *out of existence*; another and still larger class follows, and with a different definition, equally arbitrary, *does the same thing*. Having thus, by definition, abolished Matter, the Idealist, with an air of pompous triumph, marches to the sublime conclusion that nothing equals nothing! He cunningly takes from the premise of his argument all that he would not have appear in the conclusion, and thus relieves his theory of every difficulty. Now in the name of common sense let us ask: What is such a method of investigation worth? If we are allowed by definition to frame to our liking the factors which enter into the basis of an argument, any problem can be solved in any conceivable way. On what warrant do Idealists assume that being exists, and then define it as if it were a nonentity or an "activity of the Infinite?" Has the shadowy thing made a proclamation of its own unreality, or has the Infinite One revealed its nature to them? As presented to the human Mind, the external world appears to possess all the elements of reality which we can conceive of as pertaining to substance; and to convince us of our

error, we demand something more than an arbitrary definition of Being. Thus we think that the basal position—the primal foundation-stone—of Idealism is of no value whatever.

§ 5. *Idealism Abolishes all forms of Vitality.*

But we have said that Idealism denies not only the existence of Matter but of Life also. I quote from Professor B. P. Bowne's "Metaphysics," p. 343: "If we could observe the development of any germ, so as to perceive even the elements themselves, we should probably see, so far as the body is concerned, just what the Materialist supposes. . . . It is plain that with this view we feel no need of any special vital agent to construct the organism." This would be gross Materialism if the material universe were not abolished. With this disappearance of Life from the vegetable and animal realms there is nothing left us of the vital universe. Matter is gone, Life is gone, and nothing remains but a nondescript something called God. God is the universe and the universe is God. This may not be the Pantheism of Spinoza, but is it not equally undefying and absurd? The author before quoted says: "No pluralistic theory of ultimate being is tenable, but Pluralism must be displaced by Monism." There is then one God; that is, there is a universe.

§ 6. Idealistic Arguments.

But let us, by way of contrast, glance at the Idealist's objections to Dualism. He assumes, that if the Mind is one substance and the external world another, there is a qualitative gulf between them which neither can intelligently pass. We are asked how Mind, having not a property which pertains to Matter, can go out of itself and pass over into another realm and learn what is there? or if it does not go there, how can it from a distance act intelligently there? What the Mind is or how it acts are questions which cannot be answered. What Mind actually does is a matter of consciousness, and to deny that it is conscious of an immediate knowledge of things not itself, is to deny that man is an Intelligence, and is utter skepticism. In the above assumption there is half-concealed, in a latent state, the idea that the Mind is a sort of a body having spatial relations, and that its method of action is to travel about from one locality to another rubbing against things, whereas, the Mind, as a spirit-substance, knows nothing about material relations or modes of acting. The Mind can remain on earth and at the same time be present far away in the sun, and there become so absorbed in the study of its substances, properties, laws, and phenomena, that for hours together it will have no consciousness of the rest of the universe. In this sense man may be in body in one place and in spirit in another. If man

was created in God's image, why should all traces of the property of ubiquity be wholly wanting in him?

But it is admitted that something from without comes to the Mind, makes impressions upon it, and wakes up ideas in it. Is it not a gross absurdity to suppose that the passive external world acts more efficiently in reaching the Mind than the discerning Mind can act, with its complete command of the senses, in gaining access to the world? So far as we know, nothing exists without relations, and if we are not able to explain the conscious relationship which exists between Mind and Matter, our ignorance should make nothing against so palpable a truth.

It is further urged, that as Mind and Matter have nothing in essence common to both, there can be no channel of intelligence—no point of contact—between them. It was on this crag that the philosophy of Descartes became impaled and lost its symmetry. He could not deny that intercourse existed between Mind and an external world; he recoiled from the thought of materializing the Mind, and nothing was left him but to spiritualize Matter. This he at least suggested, and this principle gave birth to the Pantheism of Spinoza, and it has warped every system of philosophy which has since been given to the world. But what is there of it? Who can perceive any truth in the statement, that to know Matter the Mind must be material, or be in essence like the object known? Is not the opposite statement

quite as likely to be the truth? Thought is an ACT of the Mind, not a modification of its essence. No principle in philosophy was ever more arbitrarily assumed, or pressed to further and more fatal extremes than this. When we talk of defining the relation Mind should sustain to Matter, that it may cognize it, we assume a knowledge of the essence of both, whereas we know nothing of the nature of either. The arbitrary assumption, therefore, that because Matter and Mind are unlike, the Mind cannot directly perceive the fact and reality of an external, extended, and resisting world, is without reason for its support. The external world reaches the Mind through the senses, and in the exercise of its knowing function—the Intellect's only method of action—it receives and examines said world. The one and the same Mind, at the same moment, in one comprehensive consciousness, grasps the world without, and as a different thing, the world within.

§ 7. Idealism is a fancy Structure, having no Internal Reality for its Support.

The Idealist professes to go behind the visible universe, and back before time began, and rethink the thoughts which were in the Mind of the Creator before the supposed work of creation began. The Ideal universe he thus sets in order, as the only universe there is he gives us and vouches for as an exact transcript of the divine Mind when originally

engaged with creative designs, and, probably had he been present he might have criticised the plan and perhaps suggested alterations. The universe thus produced is nothing but God in continuous action. Such is Idealism pure and simple. And what is it but a fancy structure? And how long would it last should the real world disappear?

§ 8. *Idealism Dependent upon Realism for Existence.*

But the external world strikes the Mind of an Idealist exactly as it does the Mind of a peasant or a savage; rocks, trees, and the ground are to him what they are to the vulgar, and he never attempts to put his fancy creation into form, except as he makes visible nature his study and guide. Then, after accepting the ideas the tangible world suggests, it is declared to be non-existent, or a mere appearance where nothing appears—as if I should examine carefully a watch that, from my knowledge of it as a time-marking machine, I might declare it non-existent. Abstract from this philosophy the ideas—the subject-matter—it has derived from substance, and the shadowy form left would dissolve into nothingness. For the show it is able to make it depends wholly upon that which it declares to be a nonentity. Or, if we must accept “appearances”—the result of the “activities of the Infinite,” as the universe—then God is the only substance, he is the sole and absolute cause of the thoughts, feelings, and actions of men; and all beings

in heaven and earth are as fully the creatures of necessity as the shining of the sun or the falling of a stone. Nero and St. Paul stand together, side by side, on the same platform of fate, and neither deserves either praise or blame for his acts. They are opposite phenomenal activities of which the divine Being is the cause. Hence moral governments are abolished, right and wrong are distinctions where there is no difference, and the common sense and intuitions of ages are mere illusions. Our chief authority for Idealism says: "Whatever is true, or rational, or **REAL** (caps mine) in the universe must be traced to this Being as its source and determining origin."

§ 9. *What is Implied in the Consciousness of Existence.*

Consciousness is a special act of the Mind, one and indivisible, yet multiform in the objects embraced; its sole function is as a sentinel, to take cognizance of mental operations. The Mind's cognition is thus assured, by the additional testimony of this witness that it *knows* what it knows, and knowledge is thus made doubly clear and sure. The testimony of consciousness extends to thought, will, and feeling, and to their relations.

Were Mind a material unit it could not thus act upon itself, but as we know not what, in essence, it is, or *how* it acts, our knowledge is limited to the fact that it does act as above described.

Consciousness can exist only in the present, and when Mind is positively conscious a true contrary consciousness is impossible. We may be conscious at the same time, (1) that we exist, (2) that we think, (3) that we think of something not embraced in personal existence; and if consciousness is mendacious in one of these particulars it is not to be trusted in any.

Inseparably connected with man's consciousness of existence is also a conscious knowledge of his relations, and in this knowledge of relations an external and extended world is immediately found. Man knows, beyond the possibility of doubt, that he does not exist solitary, alone, as if suspended in an infinite vacuum. He feels as sure that existences surround him—existences as real as himself—as that he exists. This persuasion is universal, and a necessity among men. Man's consciousness of the existence of a personal self is so clear and certain and resistless and outgoing that, as a mental intuition, it directly apprehends the reality of other beings and things. The Mind possesses this knowledge, not through logical processes, not by induction or inference, but by an instinct of reason; an instinct which springs directly out of its own nature, and which we may call mental vision or intellectual discernment. It first finds the truth of reality in itself, and thus knows what it is; and then, without the toil or delay of argument, stands face to face with other truth of like or unlike nature external to itself. At the same moment Mind clearly

distinguishes between the self and the other than self, and knows that neither is a reflection of the other. Self-consciousness is mental light, in which Mind apprehends itself; and in the same light the nature, properties, and reality of other things are tested and known, and also known to be no part of self. Had not the Mind this capacity to apprehend other being —were Mind a vortex of self-engulfment—the external world would have been unknown, and even unthinkable, for it would have been out of all relation to man. Mental intuitions are independent of sensuous relations, for Mind, *per se*, is correlated directly to truth, and in the clear light of its rays a universe of facts, beings, and things is perceived. The self and its relations are so closely connected that a clear and comprehensive concept of the one includes the fact and the knowledge of the existence of the others. For man to know himself, and exist in his proper relations, is constantly to receive from, and render to, an external world; and out of these relations his existence is impossible. If I am thou art. In knowing these things I know them to be not myself.

Let us look more closely and definitely into man's relation to an external world; let us, if possible, stand by as spectators, and in the light of our own experience look at an Intellect as it is perceiving, or *in its way* looking directly at, Matter. A man tastes an apple; that taste is a nervous sensation when cognized

by consciousness, the sensation and cognition being simultaneous and forming a unit of experience; from this sensation Mind derives the intelligence that the apple contains a certain quality which produces the peculiar sensation. The conscious taste, being a nervous and intellectual act combined, is the subjective and objective united in one experience, and the quality found in the apple by the Mind, not by the senses, can exist only there, as it is never found anywhere but in thought. The act of the Intellect is the judgment it passes upon the cause of the sensation, and the laws of thought demand the verdict that the intellectually discerned apple is present and is the cause of the sensation. In its absence, the imagination pictures and intellect perceives the apple as a thing having familiar qualities. Thus the supposed chasm which yawned between man and the external world of reality is bridged, and we have gained access to it by the action of Mind directly, and also by the Mind through the sense organs.

Let us cross over to the external world in another place and in a different way. I look at the rising sun, and freely admit the truth of all that science teaches in regard to the reflection of light, the formation of an image on the retina of my eye, the functions of the optic nerve, and the sensorium; but all this physical machinery is utterly unable to form the least conception of the sun. Coneception is the work of the intellect, and it does its own work whenever it is

done, and in this case sensation can render the Mind only the most trifling assistance. Intellect perceives a sun 800,000 miles in diameter, 93,000,000 of miles distant, and only a diameter of some 22 inches of this orb can it associate with the eye. Intellect can perceive no image of the sun nor of any thing else—recognize no representation of it—but it grasps the sun itself, not with claws or nippers, but *in its own way*, as it really is, in all the vastness of its magnitude. Perception, as well as conception and imagination, is wholly an intellectual act; and as such it is knowledge; and whatever I know of the sun is a knowledge of the not-self. Thus Mind has direct and immediate knowledge of an external world.

§ 10. *Summary of the Argument.*

Briefly, this argument begins with man's conscious knowledge of a self, and that this self is closely and necessarily associated with things not the self; there it distinguishes its receptivity from without from that which arises from within; its internal from external action; its aggressive acts from counter external action; notices the collision of the self as one substance with another not the self; it experiences resistance it cannot overcome; and thus it knows by many and uniform tests and trials that the self includes in one experience a multitude of external relations, and thus it finds an external world. We know the known object as distinct from ourselves; we know both at the

same moment ; the one is here, the other there ; the one is this, the other that ; neither is the cause or the effect of the other ; each is independent of the other for existence ; and yet as different beings or things they sustain to each other manifold and active relations. Do we doubt the trustworthiness of our faculties, whose decisions are as above given ? if so, let us remember that it is from these faculties our doubt springs, and hence *it* may be of no value. If we are conscious of our relationship to the not-self, we can have at the same time no real contrary consciousness.

Then to deny the existence of an external world of substance, composed of Matter, Life, and Mind, is not only utter skepticism, but it denies that, in any proper sense, man is an intelligence. We doubt if any but "the acutest metaphysician in America" can make a clear distinction between Cosmothetic Idealism and Pantheism. If in an appearance—as the sun—there is neither Matter nor substance of any kind, and nothing but an "activity," where is the actor ? If God is ubiquitous, must not this infinite substance exist in every act ? If a snake be an "activity" of the Infinite, and if the divine substance be in the action, ought not that reptile to be called by another name ? But if God be not in the activity, then there is action without an actor, which is inconceivable. Were not this theory of nature so ghostly it would be the most ghastly nonsense that ever tried the patience of man.

§ 11. *The Idea of Substance.*

But what is the conception we are to form of substance, whether of Matter, Life, Mind, Spirit, or God?

1. Of its nature or essence in no case can we form any conception.
2. Of its beginning, as to where or how originated, we know nothing.
3. There is now in operation no process by which substance is or can be originated.
4. A Substance is a unitary essence.
5. As such it is unchangeable.
6. It is, as a consequence, indestructible.
7. Its properties and forces, being the only possible mode of its existence—being the true expressions of its inmost nature—can be neither changed, increased, nor diminished.
8. Each individual substance is a center and source of energy, and cause of phenomena.
9. In their individuality they constitute no part of the phenomena of the universe—this results from the fact that we are not endowed with a capacity to apprehend them.
10. The solid, ponderable, extended, and divisible mass proves the substantive character of its constituent atoms.
11. In the action, interaction, and reaction of the changeless primal elemental atoms of Matter, we be-

hold the action, stability, and uniformity of law. This law is not an outside pressure or influence, but it is an exact expression of the nature of that which is governed. Every crystal and every drop of water formed are expressions of the will of the Creator, and are examples of the supremacy of law. Is that in which these laws are imbedded the “appearance,” the phantom, and the illusion of the Idealist?

§ 12. *The Verdict.*

If Idealism be the truth, either as theology, or science, or philosophy, let us teach it in our colleges and theological schools, and in every way openly and boldly give it to the people as a part of their daily food. If phantoms are the only realities we have, let us make the most of them. But as I, for one, think, so have I spoken. It seems to me that any system of metaphysics or philosophy having Idealism in any form as its central element, robs man of his character as an intelligence, makes God and Nature one, and thus destroys all proper conceptions of both; then reduces that one to an appearance, where nothing appears, and lands us in utter Nihilism.

CHAPTER XIII.

THE POWER OF CONSCIENCE.

“The sweetest cordial we receive at last
Is conscience of our virtuous actions past.”—DENHAM.

“Religious feeling is as much a verity as any other part of human consciousness, and against it, on the subjective side, the waves of science beat in vain.”—PROF. TYNDALL.

“There are two subjects I can never reflect upon without trembling; the one is the vastness of the universe, the other that possibly I may do wrong.”—KANT.

§ 1. Method of Argumentation.

IN writing this treatise against Materialism the conviction has ever been present that, if Life and Mind exist as verities, they ought to contain within themselves, and demonstrate, in their own appropriate way, *the fact of their existence*, as well as manifest their peculiar properties and powers.

A vital school of thought is what we have not, but greatly need. We have labored so to formulate the phenomena of Life and Mind as Reals, separate and distinct in essence, both from each other and from Matter, as to render it impossible for thought to regard them as a unit of substance. We may hope to check the progress of Materialism only by making manifest to reason a world of vitality—not simply as

an idea, not as an abstraction, but as an undoubted verity.

If it were true that mental and physical phenomena were one in time, one in place, and one in character, and that the one class were cause and the other effect, we should certainly be able by some means to discern such relation. But between the two classes of phenomena there is only concomitance and association, and neither betrays, as related to the other, the elements of either cause or effect. Matter, examined as pure Matter, presents but few difficulties to be overcome or mysteries to be solved, but with vitality ascribed to it as a property it is all mystery. Also, when we study Mind as Mind in the light of its phenomena, our pathway is plain before us, our conceptions are clear, and the whole subject is easily understood. In the one case we are dealing with mathematical quantities and nothing else; in the other we are dealing with non-material substances, their properties and phenomena. As we can learn nothing of Matter by the study of Mind, and nothing of Mind by the study of Matter, the two fields of thought are kept separate. At no point and in no way does the one subject throw a ray of light upon the other, nor do the two lines of thought ever cross each other, or even touch each other. If, in this study, we hypothetically separate Matter from Mind, and in this state carefully investigate the properties of each one, conception of both will be clear and definite. To see clearly the

properties and the structure of a balloon we must not examine them in the light of the form or uses of a telescope ; as a means of clearness of vision, and a correct understanding of any thing, it must be isolated from every thing else and examined by itself.

§ 2. *Conscience as a Psychological Element.*

On other pages we have written of Intellect, Will, and of a class of the Emotions ; in this chapter special attention will be given to Conscience, as a part of man's mental structure. As in its phenomena Conscience contrasts so sharply with all that we know of the phenomena of Matter, a separate basis must be predicated for it.

Materialists do not pretend to deny that in the Mind there is a force or power which is properly symbolized by the word conscience, or a consciousness of self, in its relation to right and wrong ; but so far as our reading extends it occupies but a very inconspicuous place in their philosophy. Speaking of selfish wrong-doing, followed by dissatisfaction, Mr. Darwin says : "This is Conscience ; for Conscience looks backward and judges of past actions, enduring that kind of dissatisfaction which, if weak, we call regret, and if severe, remorse." Wide of the truth is this conception of Conscience. There may be very deep regret where there is no moral wrong, and such feeling has no kinship with Conscience. They are

far from being different grades of the same feeling. The following would be better if its tendency were up rather than down: "The imperious word *ought* seems merely to employ the consciousness of the existence of a persistent interest, either innate or partly acquired, serving him as a guide, though liable to be disobeyed. We hardly use the word *ought* in a metaphorical sense when we say hounds *ought* to hunt, pointers to point, and retrievers to retrieve, their game. If they fail thus to act they fail in their duty, and act wrongfully." * According to Mr. Darwin, Conscience is merely an animal instinct, associated with the idea of justice, duty, or benevolence.

George H. Lewes says: "The specially human faculties of Intellect and Conscience are products of social factors co-operating with the animal factors. He makes Conscience as near to nothing as possible, but what there is of it is in harmony with Mr. Darwin's notions.

A volume would be required to set forth the different and often-conflicting terms used by different writers in describing the nature and office of Conscience: not that Conscience, *per se*, is a doubtful or variable factor in man's nature; but definitions of it have often, at the same time, attempted to define its relations to other factors of the Mind and to conduct. Mansel makes a common mistake: "The moral decisions of Conscience cannot, by themselves, be the ul-

* "Descent of Man," vol. i, p. 8.

timate criterion of right and wrong, for if so, whose conscience is to be taken as the standard ? ” *

Mr. Mansell, with all his acuteness, is manifestly wrong. It is for Judgment, not Conscience, to make “ decisions ” in regard to right and wrong. It is important that this radical distinction be kept in view as a means of perceiving Conscience as it is, in the light of its own peculiar function.

Joseph Cook has treated the subject with great clearness and ability, and probably the views of the thinking world on this subject will be modified by the force of his utterances. But in our humble judgment he has fallen into one radical error by making Conscience a “ perception of right and wrong,” as well as a feeling. If we accept the usual divisions of Mind —Intellect, Will, and Feeling—Perception must be classed as Intellect, for Intellect must be made to embrace all mental operations. As Conscience belongs to the emotional department of the Mind, the moral feeling must be its only function. All the thinking is in one department of the Mind by itself, and all the feeling constitutes another department by itself. As Intellect and Feeling are subjectively separate, so are they distinct in all their operations. Though closely related, and acting in perfect harmony, they never transcend their respective spheres. If Conscience belongs to both the mental and emotional departments of the Mind, it breaks down all

* “ Metaphysics,” p. 153.

distinctions in the Mind, makes the two departments one, and necessitates a reconstruction of Psychology and Mental Philosophy. Intellect does all the thinking and decides all questions, right and wrong included. Things, facts, principles, the circumstances and relations of parties, must be taken into the account, fully considered, and judgment pronounced, and this is exclusively the work of Intellect. Conscience takes no part in the process any more than hope, or joy, or grief; as, like other emotions, its function is not to think but to feel. Conscience remains uninterested until Intellect suggests the idea of a *duty to be performed*. When the decisions of the Judgment involve an act that should be done, then Conscience steps to the front and becomes the imperial power of the Mind—it commands, and yet may be disobeyed. An act performed which Judgment has decided should be done is infallibly approved—the approval being a moral feeling; if Judgment has decided against the act, Conscience, as a feeling, condemns. Conscience, as a feeling, is ever on the side of what Judgment calls right in action and truth in principle.

§ 3. *Functions of Conscience.*

In this universe there is a moral realm, and in man it has a twofold root: 1. In his mental ability to perceive right and wrong. 2. In Conscience, and its voice as a feeling comes from the profoundest

depths of the human Mind. If an act is in accordance with our best ideas of right and duty it speaks the words: "Well done;" if not, "O thou wicked servant." In both cases the voice we hear is the stir—perhaps the upheaval—of a feeling in the soul.

In denying to Conscience an intellectual property it may be thought we degrade it by limiting its powers. We give no thought to the logical consequences of our exposition; we are only anxious to state the exact truth in the case—to read nature, not amend it. If we can see it as it is, our perceptions will be clear; if we see it as a part of something else, they will be hazy and confused. The close association of Conscience with Intellect and Knowledge results practically the same as if Conscience were a part of Intellect.

The Conscience itself cannot think, yet as a Feeling it is a subject of thought and of knowledge, and to a large extent it is an educator of the Intellect in morals. An abstract wrong act in *thought* is simply an error, but Conscience, sitting in judgment upon it, makes it terrible. An element of right, as a matter of reason, is sublime, but incarnate in a conscientious act, it is the purest felicity.

Intellect can fully understand moral right and moral action only as they are examined in the atmosphere and the light of a quick and an active conscience. A pathway of reasoned right does not

always bring to the whole man the light and peace and joy anticipated. The chart we have studied points in one direction, but deep within us is an impulse, a feeling, an oracle we call Conscience, which as a needle trembles, oscillates, and on the whole hesitates, as if another direction should be sought.

Conscience is thus a constitutional moral instinct.

Conscience is an oracle, and Intellect should listen to its voice.

By constant care in little matters Conscience may be strengthened, refined, rendered very sensitive, and greatly elevated.

Conscience may be blunted, seared, and destroyed; but it cannot be depraved or perverted. So long as it acts at all, it will approve the right and condemn the wrong.

In its struggle to decide for the right and against the wrong the Will is often helped by the inspiration of Conscience.

Having specified with sufficient clearness what Conscience is, the main question of its base or origin—whether mental or physical—is to be considered. If, as Materialists claim, man is a unit of Matter, Mr. Lewes would say that Conscience is the result of the “conditions” of the organism, and leave unexplained what was meant by conditions. Bain would affirm that Conscience was a specific nervous “stimulus,” or a nerve in a certain “state,” and leave the words “specific” and “certain” unexplained. And yet it

is claimed that the connection between nerves and self-approved, or remorse, is even thinkable !

§ 4. Practical Illustrations of the Strength and Nature of Conscience.

We cannot conceive of Conscience as a physical act ; but often, as we feel it, and see its workings in others, it seems to be a voice, a balm, or a fire in the Mind. Its phenomena are peculiar, appearing in both Intellect and Body with which it acts.

For our illustrations of the nature and power of Conscience we go out into the world among men, as the question is one of fact, not speculation. In marshaling the facts which go to illustrate the moral quality and mental relations of Conscience I avail myself of the labors of Joseph Cook :

“The innermost laughter of the soul at itself, it rarely hears more than three times without hearing it forever. What is the laughter of the soul at itself? Do you not know, and do you wish me to describe, this convulsion of irony, of fear? It may be of despair, which sends cold shivers through all our nerves, causes a strange perspiration to stand on our foreheads, and makes us quail even when alone, as we never are. You would call me a partisan if I were to describe an internal burst of laughter of Conscience at the soul. Therefore, let Shakespeare, let Victor Hugo, let cool, secular history, put before us the facts of human nature.

“Here is Jean Valjean, principal character in Hugo’s ‘Les Miserables,’ one of the six best works of fiction the last century has produced. Hugo is no theologian. He is not even a partisan teacher of ethics. He is a Frenchman. His ideals have been obtained largely from Paris. But you open his chapter entitled ‘A Tempest in a Brain,’ and you find him asserting that ‘there is a spectacle grander than the ocean, and that is, the Conscience.’ There is a spectacle grander than the sky, and it is the interior of the soul. To write the poem of the human Conscience, were the subject only one man, and he the lowest of men, would be reducing all epic poems into one supreme and final *epos*. . . . It is no more possible to prevent thought from reverting to an ideal than the sea from returning to the shore. With the sailor this is called the tide. With the culprit it is called remorse. ‘God heaves the soul like the ocean.’ Elsewhere this modern Frenchman writes: ‘Let us take nothing away from the human Mind. Suppression is evil. Certain faculties of man are directed toward the Unknown. The Unknown is an ocean. What is Conscience? The compass of the Unknown.’ (‘Les Miserables,’ chapter entitled ‘Parenthesis.’)

“Valjean here has been in the galleys. He has escaped, assumed another name, and has become the mayor of a thriving French town. In his business he acquires the respect of all who know him. But one day an old man who had stolen a bough of apples,

and who looks like Jean Valjean, is arrested as Valjean himself, and is in danger of being condemned to the galleys for life. There is a striking resemblance between the faces of the two men. The true Valjean is brought face to face with the question whether he will confess his identity or allow another man to go to the galleys in his place. Valjean has tried to recover his character. A bishop, who taught him religious truth, seems to hover in the air over him. A couple of golden candlesticks, which the bishop gave him, he treasures as possessions priceless for their reminiscences. He goes to his room, shuts himself in, and, as Victor Hugo affirms, he was not alone, although no other man was there. Valjean meditates on his duty, and his mind becomes weary under the tempest of conflicting motives. Shall he go back to the galleys? Shall he be whipped up the side of the hulks every night in loathsome company? Shall he feel the irons on his ankles and on his wrists? Shall he hear nothing but obscenity and profanity the live-long, hard-working day? Shall he give up the opportunity of being a benefactor to a wide circle of the poor? Ought he not to make money that he may give it away? We have forgers who ask that question. It is said that some men have thought it a convenient modern trick in trade to endeavor to persuade one's self that the infinite weight of the word ought lies on the side of philanthropic forgery. But Victor Hugo does not represent Jean Valjean as of

that opinion. In spite of all the temptations found on that side, Valjean at last concludes that it is his duty to declare his identity and save his Champmathien from the galleys.

“But, then, as you remember, there comes another thought to Valjean. Fantine, a ward of his, and her child, Cosette, depend on him exclusively. The mother has suffered nearly every thing, and deserved to suffer much, but, without Valjean, her life and that of her child’s will be a ruin. ‘Is it not,’ he asks, ‘a clear case that this old man, who has but a few years to live, is worth less than these two young lives?’ Throwing himself out of the case, Valjean must leave either him or them to their fate. Reasoning thus, he at last adds his former selfish temptations to these unselfish ones. He remembers his duties to himself and his duties as a benefactor. He sums them all up; and says that, after all, nobody knows that he is Jean Valjean. He has only to let Providence take its course. God has decided for him. He makes up his mind not to declare himself. ‘Just there,’ Victor Hugo says, ‘I heard an internal burst of laughter.’ Hugo affirms that a man never hears that more than three times.

“Valjean, however, persists in his resolution not to declare himself. He repeats his reasoning in self-justification; he thinks that he speaks from the depths of his conscience; ‘but still he felt no joy.’ This sign of self-deception does not induce him to

pause. He takes down his old galley suit, burns it; finds the thorn stick, with its iron-pointed ends, which he had used when a vagabond, burns that; gazes on a coin which he robbed from a boy, puts that in the fire; and, finally, he prepares to destroy the two golden candlesticks which, years before, were given him by the bishop, who now seems to be in the air at his side, not able to face him quite, but whispering behind his ear. He takes these candlesticks, bends over the fire, almost stupefied by the violence of his emotions; warms himself at the crackling flames; throws them in—‘Valjean !’ He looks up, and there is no one there. There was some one there, Hugo says, but he was not of those whom the human eye can see. ‘Do this,’ continued the voice, which had been at first faint, and spoke from the obscurest nook of his Conscience, and which had gradually become sonorous and formidable, and seemed to be outside of him: ‘Put into the flames all that suggests reminiscences of the devout sort. Make yourself a mask if you please; but, although man sees your mask, God will see your face; although your neighbors see your life, God will see your Conscience.’ And again came the internal burst of laughter. ‘That is excellently arranged, you scoundrel !’

“Midnight struck. Valjean heard two cloeks. He compared the notes, and he was reminded that he had seen a few days before, in a shop, a bell having on it the name ‘Romainville.’ Hugo is a subtle poet.

He says much between the lines. ‘Suddenly Valjean remembered,’ says Hugo, ‘that Romainville is a little wood near Paris, where lovers go to pick lilacs in April. Valjean falls asleep and has a dream. He is near Romainville, but all the houses are of ashen color; all the landscape is treeless and ashen; the very sky is of leaden color. He enters Romainville, where the lilacs grow that the lovers pick in April—deep allegory this, by a Frenchman, no partisan, no theologian—and around a corner, where two streets meet, he sees a man leaning against the wall. ‘Why is this city so silent?’ The man makes no reply. Valjean enters a house. The first room is empty; in the second room, behind the door, he finds, in his dream, another silent man leaning against the wall. He asks him why the house is deserted, but no reply is given, and all the walls are ashen color, and the sky continues to be leaden. He wanders into house after house. He finds a fountain bursting up in a garden, and behind a tree a man; but he, too, is silent. There was behind every corner, every door, and every tree a man standing silently. Before entering Romainville he meets, on the plain near the city, a horseman, ‘perfectly naked,’ Hugo writes—and he knows what he means—‘and with a skull instead of a head, but yet the veins were throbbing around the skull; and in his hand there was a wand,’ Hugo says, ‘supple as any grape-vine, yet firm, and heavy as lead. With that wand this horseman was to chastise the inhabit-

ants of this city. Valjean, in his dream, went out of the city in horror, and, looking back, he saw all its inhabitants coming after him. They saluted him on the open plain, under the leaden sky, and this was their language: ‘Do you not know that you have been dead for a long while?’

“Men who have heard the internal burst of laughter as forgers, as lepers, as those who dare not open their souls to their neighbors, find behind the doors, and in the booths, and even on the street corners, silent men; and when these criminals, known to God under their masks, walk into solitude, those silent men come after them; and when once Conscience has been finally insulted, the cry of all the nature of things is represented by that of the inhabitants of Romainville in Victor Hugo’s dream. Instead of lilacs in April, you have the leaden sky; you have all the earth dun-color; you have a brazen sod on which to stand; you have this horseman, with the whip lithe as a grape-vine and heavy as lead, before you; and behind you this host with the cry: ‘Do you not know that you have been dead for a long while?’

“Valjean finally confessed his identity, and the court and audience, when he uttered the words, ‘I am Jean Valjean!’ ‘felt dazzled in their hearts,’ Hugo says, ‘and that a great light was shining before them.’

“Take Richter’s ‘Titan,’ another of the six greatest works of fiction the last century has given to the world, and, perhaps, the greatest of them all.

Roquairol, the fiend of the book, dies by suicide. He utters no words which the Titanic Richter, no partisan, no theologian, does not put into his mouth. Richter's human horologes have crystal dial-plates and transparent walls, which allow us to see the mechanism within. More than three times this Roquairol has heard the laughter of his soul at itself. 'I cannot repent,' says the leper, with his pistol at his own brain. 'Should that which time has washed away from *this* shore cleave again to the shore of eternity, then it must fare badly with me there. I can change there as little as here. I do verily punish myself, and God immediately judges me.' Here he suddenly points the weapon at his forehead, fires, and falls headlong; blood flows from the cloven skull; he breathes once, and then no more. Albano, the serene, vast soul which represents Richter's views of Conscience, stands at the side of the corpse, and seems to hear the words from the suicide's breast and iron mouth: 'Be still; I am judged.'*

"But, you say, William Shakespeare would not be as melodramatic as this Frenchman Hugo, nor as serious as this German Richter. He was an Englishman. Shakespeare more than once has represented the despair of the soul under the law of its own nature:

"O my offense is rank, it smells to heaven;
It hath the primal eldest curse upon it,

* *Titan, "Cycle,"* p. 130.

A brother's murder! Pray can I not,
Though inclination be as sharp as will;
My stronger guilt defeats my strong intent.

In the corrupted currents of this world,
Offeuse's gilded hand may shove by justice;
And oft 'tis seen, the wicked prize itself
Buys out the law: but 'tis not so above:
There is no shuffling, there the action lies
In his true nature; and we ourselves compelled,
Even to the teeth and forehead of our faults,
To give in evidence. What then? What rents?
Try what repentance can: what can it not?
Yet what can it when one cannot repent?
O wretched state! O bosom, blaek as death!
O limed soul, that, struggling to be free,
Art more engaged! Help, angels, make assay!
Bow, stubborn knecs.'—HAMLET, *Act 3, Scene 3.*

And they cannot. But the knees that cannot bend are before the hosts of which Hugo speaks. 'Do you not know that you have been dead a long while?' The knees that cannot bend are dead. Is the laughter of the soul at itself a laughter from which it can flee? In the next life shall we escape these internal bursts of laughter—from Conscience? Never, unless the soul can escape from itself. While we continue to be spiritual individualities we must keep company with the plan of our natures, and this plan is expressed, as in that allegory of Romainville, lilacs in April, and the question from the half-headless host: 'Do you not know that you have been dead for a long time?'

“ ‘To be, or not to be, that is the question.

... To die, to sleep: . . .

To sleep! perchance to dream—ay, there's the rub;
For in that sleep of death what dreams may come,
When we have shuffled off this mortal coil
Must give us pause. . . .

The dread of something after death,
The undiscovered country, from whose bourn
No traveler returns, puzzles the will,
And makes us rather bear those ills we have,
Than fly to others that we know not of.
Thus conscience does make cowards of us all.'

HAMLET, *Act 3, Scene 1.*

" You say that Shakespeare here is speaking poetically? But again and again he utters the same thought. You remember Clarence's dream:

" ' My dream was lengthened after life.
O! then began the tempest to my soul!
I passed, methought, the melancholy flood,
With that grim ferryman which poets write of,
Unto the kingdom of perpetual night.
The first that there did greet my stranger soul
Was my great father-in-law, renowned Warwick,
Who cried aloud, ' What scourge for perjury
Can this dark monarchy afford false Clarence? '
And so he vanished; then came wandering by
A shadow like an angel, with bright hair
Dabbled in blood, and he shrieked out aloud,
' Clarence has come; false, fleeting, perjured Clarence,
That stabbed me in the field by Tewksbury:
Seize on him, Furies: take him to your torments.'
With that, methought, a legion of foul fiends
Environed me, and howled in mine ears
Such hideous cries, that, with the very noise
I trembling waked, and for a season after
Could not believe but that I was in hell.'

KING RICHARD III., *Act 1, Scene 4.*

“‘The internal burst of laughter !’ Shakespeare knew what it was in its earlier life, or he could not have written those passages concerning souls that seem to have heard that laughter at least three times.

“Out of the multitude of historical examples of the laughter of the soul at itself, take only two. There is Charles IX. of France. He consented to the massacre of St. Bartholomew. He is dying. He is twenty-four years of age. He is in such an agony of remorse that the historians say there is documentary evidence of the fact that he sweat blood ! Not only did the blood pour out of nostrils and the corners of the eyes, but in many places through the corrugated veins did the blood ooze. That is history and not poetry. He recalled the massacre of St. Bartholomew to which he had assented. ‘How many murders ! what rivers of blood !’ and he went hence as Clarence went out of his dream. ‘Quelle preuve,’ adds a French historian to his narrative of this scene, (Duruy, ‘Histoire de France,’ tome ii, p. 120), ‘de l’ impuissance du crime a tromper la conscience du coupable.’ You say that this is a very penetrating gleam into the recesses of natural law, if it be fact. You know that facts of this kind are numerous in history ; and no philosophy is sound that does not match itself to all the facts of its field: the blisses and pains of conscience ! We know the pains better than the blisses ; but the nature of things weighs as

much for us as it does against us. The weight of the word ought is as great when it is against us as it is when it is for us.

“John Randolph fought a duel with Henry Clay. He walks into the Senate Chamber, staggering in his last illness. Mr. Clay is rising to speak. The two men have not addressed each other for months. ‘Lift me up,’ says Randolph, loud enough for Clay to hear him; ‘I must listen to that voice once more.’ He was lifted up; Clay finished his speech; and the men shook hands and parted almost friends. Randolph was taken to Philadelphia, and his biographer—(‘Life of Randolph,’ vol. ii, last chapter)—I am citing no newspaper clamor—says that on his death-bed he asked his physician to show him the word remorse in the dictionary. ‘There is no dictionary in the room,’ says the physician. ‘Very well; here is a card. The name of John Randolph is on one side of it; write on the other the word which best symbolizes his soul. Write remorse in large letters; underscore the word.’ After that was done Randolph lifted up the card before his eyes, and repeated in a loud voice three times, ‘Remorse, remorse, remorse!’ ‘What shall we do with the card?’ says the physician. ‘Put it in your pocket, and when I am dead look at it.’ You say he was crazy. After all these things he dictated his will, manumitting his slaves; and, at that day, such a will could not be drawn except by an acute and clear head. It

was technically perfect. ‘ You know nothing of remorse,’ said John Randolph—no theologian, no partisan, a man of the world. ‘ I hope I have looked to Almighty God as a Saviour, and obtained some relief; but when I am dead look at the word which utters the inmost of my soul, and you will understand of what human nature is capable.’ He had head the internal burst of laughter twice; it may be, not the third time.

“ Here are the most incisive words Byron ever wrote concerning Conscience :

“ ‘ The mind that broods o’er guilty woes
Is like the scorpion girt by fire,
In circle narrowing as it glows,
The flames around their captive close;
Till inly searched by thousand throes,
And maddening in her ire,
One sad and sole relief she knows,
The sting she nourished for her foes,
Whose venom never yet was vain,
Gives but one pang and cures all pain,
And darts into her desperate brain:
So do the dark in soul expire,
Or live, like scorpion girt by fire;
So writhes the mind Remorse has riven,
Unfit for earth, undoomed for heaven;
Darkness above, despair beneath,
Around it flame, within it death.’ ”

—BYRON: “ *Giaour.* ”

A history of the workings of the human conscience will never be written with pen and ink, for none but the Infinite can know them; but in the light of the

few facts we find on record and of our own consciousness, can we deny that Conscience, as a part of our mental structure, is often such a caldron of moral emotions as agitates with awful terrors both Mind and Body?

§ 5. *Laws of Conscience.*

Consider the following facts, suggested, in part, by Mr. Cook:

1. When Conscience is a feeling of approval the physical expression of the eyes, the countenance, the position of the body, and the gestures are all of an animated, joyous, and elevated character.

Such expressions of the body constitute the written language of Conscience. They may be partially imitated by the genius of the actor, on special occasions, but the voice of nature is ever spontaneously the same. In childhood and youth, when the thought of simulation has never occurred, the outward expression of the workings of Conscience is the most clear and conspicuous. The physical effect we witness can be referred only to Conscience as their cause.

2. When Conscience is a feeling of condemnation and sorrow, it is accompanied by a heavy expression in the eye and countenance, and the whole body has a weak, downcast, and gloomy appearance.

3. If there were no shame in the confessions of

guilt, and if the most secret recesses of the heart were divulged without discipline or restraint, the force of Conscience, acting upon the body, would be far more conspicuous than as we now witness it. In that case the physical expression would correspond with the inward feeling.

4. The thought of a crime, long since committed, may awaken Conscience to such a depth of feeling as to cause the whole body to tremble and suffer—and suffer even to the sweating of blood.

5. Conscience is a law, obedience to which, in all the practical affairs of Life, seems the highest development of character, and disobedience the deepest degradation.

6. A moral distinction founded on Conscience opens a gulf between the highest and lowest members of society, and observation, confined to our little planet and to this short life, teaches that this gulf may become so deep and wide that a passage from one side to the other is not to be expected.

A right motive and an approving Conscience walk hand and hand. If an action be wrong in itself, as may be the case even when the purpose is right, the fault, if any, is with the Intellect, and not with the Conscience. Mr. Cook mistakenly says: “Right and wrong belong only to motives.”

In our judgment right is right in itself, and wrong is wrong in itself, and a right motive is right so far

as it goes, but a right motive does not make right a mistake of the judgment. The sphere of Conscience is limited, but within that sphere it always acts infallibly right, that is, as a Conscience should act. Mr. Cook says: "Without the Sense of taste there is no perception of flavors; without Conscience there is no perception of the difference between right and wrong." Again is Mr. Cook mistaken. The vilest and most conscience-seared men perceive that murder, robbery, and other crimes are wrong, and that the practice of truth and justice is right. Even lost spirits possess this knowledge. But Mr. Cook is right when he says: "A being without Conscience, however highly endowed intellectually, cannot be taught to **FEEL** the distinction between what ought to be and what ought not to be." "Perceiving" and "feeling" a right and a wrong are widely different mental actions, the first is a Matter of Intellect, the latter a Matter of Conscience. Intellect may remain, and its knowledge continue long after Conscience has been seared and hushed to silence.

Can credulity reach so far as to recognize Conscience as a property of self-arranged Matter? Only by a method of false induction is Conscience ever thought of in this connection? Is there in dirt a potential Conscience which becomes manifest during the process of its self-organization? Our question implies assumption upon assumption, neither of

which is supported by a fact in nature or a principle in philosophy.

Our conceptions of a full-orbed man regard his physical development as of but secondary importance. A pygmy Mind in an Apollo form would fail to command special respect. The genius of Esop, notwithstanding his physical deformities, was alike the charm of kings and of the masses. The glories of Intellect, supported by high moral character, can never be eclipsed. When we think of Leibnitz, Kant, and Newton, we think of three vast moral Intelligences. Exalted genius, with a lack of character, have isolated Byron, both from the crowd, and from the crowned few. Solitary and alone he felt himself to be when living, and there he stands to-day. In thinking of man we think of a responsible Intelligence—of intellect, reason, perception, thought, memory, will, feeling, conscience, hope, joy, sorrow, remorse, despair—also, that these phenomena are the outcome, not of Matter, but of a Spirit-substance.

Daniel Webster's conceptions of the man proper were correct when he said: "There is no evil that we cannot either face or flee from but the consciousness of duty disregarded. A sense of duty pursues us ever. It is omnipresent, like the Deity. If we take to ourselves the wings of the morning, and dwell in the uttermost parts of the sea, duty performed or duty violated is still with us for our happiness or

misery. We cannot escape their presence nor fly from their power." Conscious weakness, dependence, duty, responsibility, and accountability, and our secret purposes, as fully as our most public acts, under the power of Conscience, keep us constantly beneath the all-seeing eye of the Infinite One.

CHAPTER XIV.

SENSATION, REASON, FAITH.

"The human soul has claims and yearnings which physical science cannot satisfy."—JOHN TYNDALL.

§ 1. Sensation Analyzed.

NERVE action, sensation, consciousness, perception, reason, and spirituality, are distinct links in the chain of human experience, the first of which is physical, and the last, in its highest sense, is the basis of the Christian life. Sensation, as psychophysiological phenomena, is the Consciousness of impressions made upon the nerves of the body. What the impressions signify is a matter of perception and judgment.

Or, Sensation is the Mind reading the reports made to it by the Sense-organs. Mind and the Senses are so adjusted and correlated to each other that the impressions made upon the latter inspire thought, and become intelligence in the former. The Senses are five in number, and Sense-impressions are innumerable; but as they all meet in the one Mind their significance—*their only value*—is there understood and there remains, while the physical part of the sensation ceases to be of use, and passes away. Sensation

takes its rise in the Sense-organs ; but it is perfected when its purport becomes an intellectual perception. The sense and the perceptive parts of the sensation are closely related, and yet, in nature, they have nothing in common : the first is nervous and vital, the second intellectual and ideal. Mind being a unit, constructed according to the laws of order and logic, unifies all Sense-impressions by perceiving their significance, and arranging and classifying the ideas conveyed according to its own laws of thought.

Sense-impressions may be unlimited in number and variety, but in Mind they all receive their true intellectual character.

Hume made one mistake which was fatal to his philosophy. He conceived that each sensuous impression man experienced was an isolated, independent existence, and that between different impressions there was no logical connection or relation to be perceived by Mind. The one perceiving and understanding Mind, in which the sensation became intelligence, fully digested, and the parts properly related, was the fatal deficiency, as shown by Kant, in his system of knowledge. A sensation from which perception and knowledge are excluded, is a nonentity. A conscious sensation always signifies something to the Mind, and from one, two, or a multitude of them, trustworthy judgments can be formed. Could impressions made upon the nerves be confined to nerves, and not allowed to reach the co-ordinating Mind, practically,

they would amount to nothing, and really be unknown; but such action is impossible, except in rare cases in which Mind is all absorbed in other matters.

Mind is, then, an intellectual workshop, ready to receive the raw material and crude notions brought to it by the Sense-organs; and it builds structures, or forms judgments out of the necessary and *a priori* truths it discovers in them. Intellect gives to Sensation its unity and definable characteristic.

§ 2. *The Sense-organs Defined.*

Each one of the five senses is correlated to a specific department of the external world, and their construction is of such surpassing delicacy that on the instant they are excited by contact with it. It is known that electricity produces the same effect upon all the senses without modifying a sensation, and it is probable that this force plays an important part between the Sensorium and the Mind.

The senses, Smell and Taste, seem to be very physical in their character, adapted to the wants of the body, and hence they bring to the Mind but a small quota of its intelligence. Sight and Hearing occupy a higher plane, and give to Mind its widest range of observation. The sense of Touch is not a special organ, nor has it a special objective correlative.

A brief examination of the action of the Sense-organs, and their relation to Mind, will aid in forming a clearer conception of conscious Sensation. We

begin with the sense of smell. The object of the sensation, we will suppose, is the effluvia of the rose. These substances, on account of their smallness, escape the observation of the chemist, and we know nothing of their essence or composition, and as substances they are known only to the olfactory nerve. In the Sense-impression they produce we recognize a vital phenomenon, but thus far there is neither thought, idea, nor intelligence; but on the instant Mind is conscious of the sensation, perceives what it signifies, and recognizes the odoriferous emanations of the rose as the cause. The fullness of this intelligence is, of course, the result of observation and experience. The sensation and the consciousness of it are co-existent, mutually dependent, and really parts of the same thing. The meeting of the subjective Mind and the objective odor results in a new ideal creation. The Sense-impression passes away, the idea remains, and is classified with other ideas. Mind has learned that the rose is a something which exists apart from itself, and possesses a peculiar property capable of producing a peculiar impression upon the olfactory nerve. Bring upon this nerve musk, emanations from ammonia, and other substances, and as the substances vary, so will the nerve-impressions they produce, and so will the intelligence we derive from the impressions. The Mind is the workshop in which Perception and Reason classify and arrange, in logical order, the intelligence received through the Sense-organs.

The sense of Taste has a special nervous and vital basis of its own, located principally in the tongue. The unknown flavorous quality of substances are brought into contact with it, producing upon a specific class of nerves a vital impression ; Mind instantly becomes conscious of this fact, and, if familiar with its purport, passes judgment upon its cause. If the taste-impression is that of lemon juice, Mind perceives that the lemon must possess a certain quality, very active and pungent, which is the cause of the peculiar impression made upon the nerve. Taste and smell are only special modifications of touch. William B. Carpenter teaches that "the flavorous body is in contact, not with nerves but only with their exterior covering; and, in order to produce the distinctive sensations of taste, it appears to be necessary that the sapid particles should be dissolved in the saliva, and thus penetrate through the investments of the papillæ in the substance."

The different taste-sensations are called sweet, sour, bitter, acid, with their degrees of intensity and other modifications. Mind recognizes the fact that taste is not self-produced, and that ordinarily it is the result of the contact of the sense with the external world.*

Hearing, less physical in its character, is nevertheless one of the most useful, and, especially to musicians, most pleasurable of the senses. A vibratory

* For an account of the influence Mind may exert upon the senses, see chapter VI.

motion of the air strikes the auditory nerve, and changes its condition; these changes are transmitted by a fluid inclosed in the labyrinth of the ear, and in some way unknown to us, the Mind becomes conscious of the nerve action. The sensation of sound is the result. In this sensation there is no intelligence; and all the information we obtain through the infinite variety and distinctions of sounds is the result of an educated intellect. In listening we give but the least attention to the sensation of hearing, for in itself it is not particularly a pleasurable feeling; but the idea expressed in the sensation is an intellectual interest. The sense of hearing is situated on a more elevated plane than those of taste and smell. It ministers, principally, not to the physical organism, but to the intellectual man.

The sense of Seeing bears about the same relation to the Mind within, and the world without, as the sense of hearing. The pleasures of Seeing are not located in the Sense-organ as in Taste, but in the Mind, to which it ministers. We probably receive more information through the eye than through all the other senses together. Sight is a peculiar modification of touch. The direct sense-impression is produced by contact. The object of the physical part of sensation is not the distant body—a tree, or a star—but rays of light are emitted or reflected from it, and its image is formed on the retina of the eye. That image, thus formed and recognized by intellect, is the complete sen-

sation of seeing. The optic nerve is cool and calm, and never experiences a thrill of pleasure such as we experience in taste and smell. Strictly speaking, we do not look away and see the distant object at all ; it comes to our open eyes in a miniature form, borne on the rays of light, and brings its image into contact with the sensorium through the optic nerve. Beyond this simple, vital phenomena all we know and enjoy through the sense of seeing is intellectual and a matter of education. The sense of Seeing, and the results of that sensation, bear but the faintest resemblance to each other. “The presented object is on the surface of the retina ; the represented object appears without, and at a greater or less distance from the eye. The presented object is of such size as can be contained within the spectator’s visual organism ; the represented object may be many times larger than his whole body. The presented object is a flat surface ; the represented object is a solid body. The presented object is inverted ; the represented object is erect. The presented object is double, there being a distinct image on the retina of each eye ; the represented object is generally single, the two images being in normal vision united into one body.”—*Mansel*. Real intelligent vision is of the Mind to which the object is present.

The sense of Touch, in one remarkable particular, differs from the other senses, as it has no special organ of its own, and tactual sensations may be produced in the various parts of the body. Touch has

no special correlative like Taste and Smell, Sight and Hearing. The sensation of heat and cold, and of various kinds of pain and pleasure, which may be local or diffused throughout the body, produced by either internal or external applications, may be regarded as the objects of the sense of touch. In some respects tactual sensations are very delicate and trustworthy ; in other cases they become instruments of other sensations with which they are confounded, and lose their definite character. This sense is subject to great improvement by culture, as may be seen in the facility with which the blind can read by the use of raised letters.

§ 3. Relation of the Senses to the Mind.

Having thus indicated, rather than examined, the number, nature, and office of the Sense-organs, let us pass to the consideration of their relation to the Intellect. Mr. Carpenter thinks, that "the peculiar structural relation of the cerebrum to the ganglionic tract constitutes the Sensorium, or the center of consciousness." Be it so ; if this hypothesis is not correct some other is, for there is a seat of conscious sensation somewhere. This ganglionic tract may gather together in itself the nerves of Sensation and constitute the Sensorium. But be this as it may, we now pass from the action of physical Sense-organs to the action of the Mind in its relation to them. Its first movement is in the direction of observation, or

perception. An impression has been made upon the Sensorium of which Mind is conscious ; the phenomena of sensation, in which the object, the nerves, and Mind share a part, is the result. By the action of Mind the complex sensation is made a unit of intelligence. In the absence, or intense pre-occupation of the Mind, there can be no sensation. I notice that my clock has just struck ten, but I did not hear it. My ear, I have no doubt, did its duty well, but my Mind was wholly away from the Sensorium, and the report of the nerves was not received—hence there was no consciousness of the action of the waves of air set in motion by the sharp strokes of the hammer on the clock-bell. This fact proves that Mind and the Sensorium are two things, and that they can act in separation.

Perception is, as we have seen, an act of the Mind, taking into account the fact and the purport of a conscious sensation. The sensation is never complete unless the Mind is conscious of it. Nerve action can produce sensation only in Consciousness. Consciousness, as related to the senses, can only recognize the fact that an impression has been made by a nerve upon the Sensorium ; what the sensation signifies must be decided by perception and judgment.

In early infancy the purport of the sensations hunger and taste, it is likely, constitute its first clear perceptions. The specific signification of a sensation can be known only by experience, repetition, and

memory. In a first sonorous sensation there is no definite intelligence to tell us what it is or whence it came, but perception, by noting its peculiarities and tracing it to its source when repeated, in time understands its purport. In this way we may learn to distinguish every tone that can be produced by the human voice or upon a musical instrument. We can never know by instinct or by intuition the signification of any strange sound.

Sensation is but one of the processes of instruction available to the Mind, and a common principle is applicable alike to all the Sense-organs. They talk many languages, and to understand them is the Mind's first business. Each sense has its special work to do, and no one sense is allowed to invade the realm of the others. The fact that the Mind extends its cognitions to all the senses alike, and flies, with the rapidity of thought, from one to another, proves that it is an individual spirit-substance. Man must hold that something excites and smites his senses ; he cannot conceive this to be the reaction of self, or the self-action of the senses ; he is, therefore, forced to recognize an external world.

Though Nerve Action and Perception are co-existent, the one a feeling in Consciousness, and the other a knowledge of its import, yet their functions are utterly unlike. I see in the distance a group of living creatures ; that is, forms of various colors and figures strike the optic nerve, producing a sensation in

Consciousness. Perception, as an act of the Mind, can see the group of living creatures only as it perceives them in the impression which their images on the retina of the eye have produced in Consciousness, and by the study of these impressions, and making full use of previously acquired knowledge, Mind concludes that one of the forms is a bay horse, another a white horse, and others are young colts. The eye decides nothing in either case; that is the work of perception and judgment. That perception and judgment accomplish this work in an instant alters not the case. The inverted image of an elephant has been imprinted upon the retina of our eye, producing a sensation in Consciousness; the difference between the elephant of sensation and the elephant of the Mind is the difference between the picture on the retina and the living creature. Mind perceives only the animal.

The sun to sensation is but a bright spot, daily rising and setting; to perception and reason it is a massive orb of quite another kind. The power of the senses is, as compared to the greatness of the universe, circumscribed to small points; but they serve as avenues through which the reasoning ego passes into an infinite realm of ideas and things.

§ 4. *The Sphere of the Action of Reason.*

But it is only a small portion of its time that Reason acts in connection with the Sensorium. Below that plane, in its own proper realm, most of

its hard work is done. It may be that some intellects are so weak, and so dependent upon the Sensorium for stimulants to action, that they seldom indulge in abstract, independent thought. This, probably, is the habitual condition of brutes. But a Mind given to a life of thought, resorts to the Sensorium for ideas only when it would look out upon a world of Matter. The empire of the Senses is small compared to the vastness of the universe of Reason, and in its wider range and higher flight the Senses take no part. They humbly serve to some little extent as the scaffolding on which Reason stands while she builds. Reason finds many fields of thought outside the range of the senses and wholly unknown to them. The Emotions, the sway of Conscience, the range of Imagination, and the creation of Fancy, open to the Mind an endless field of action. Mind, also, possesses inspirational power, and can supply itself with subjects of thought to any extent. Mathematical problems and poetic insight lead the Mind into worlds of abstract creations which are wholly its own.

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But Reason has its sphere of action, and, like the Senses, is confined within its own limits.

§ 5. *The Moral Element in Man must be provided for.*

The world by wisdom knows not God. The grasp of intellect is effected by comprehension. Mind is correlated to ideas, but not to ideas that are infinite. A full and strong intellectual grasp of a truth is a

possession of it. Reason can think of him, can perceive his works, can see in them design, a display of goodness and power, but cannot find in them God himself, nor adjust man's relations to him. Reason has its limits, and when it finishes its work and refuses to go further, Faith enters and gives to human character its full-orbed proportions.

Let us pass along various channels of thought, giving to Reason its freest scope, and see if it cannot find somewhere the living God. We will first enter the realm of chemistry. I analyze a drop of water—find so much hydrogen and so much oxygen—but I do not find God. I then subject all the waters of the globe, the atmosphere, the rocks, the ground, finally all the Matter of the universe, to chemical analysis, but by searching do not find the Almighty. But what have I proved? that there is no God? No; but simply that God is not a chemical element. We dissect the human body—examine with microscope every bone, muscle, nerve, tissue, and drop of blood—but do not find God. We then proceed to dissect every living thing in the universe, and with the same result. But have I proved that there is no God? I have simply proved that Reason cannot find him by the use of the scalpel and microscope, as a part of tissue, blood, or bone. Let us try the science of geology. We turn over the rocky leaves of the earth's crust, examine the fossils of the ages that have passed away, but nowhere can God be found as

an element in that science. Then, with my astronomy, I sweep through the skies ; and though the heavens declare his glory, and the firmament displays his handiwork, yet the Being who made all these things Reason is unable to find.

I continue this scientific search after God till I traverse all the channels of thought, and my mind is forced to the conclusion that God is not in chemistry, as an element ; not in geology, as a part of the earth's crust ; not an anatomical part of an organism ; not in mathematics, as a quantitative factor ; not in astronomy, as a part of creation ; nor can Reason perceive or find him in any thing or anywhere. And such is the nature of the problem before me that I ought not to be in the least disappointed. Because Reason does not find God, as it finds material and finite things, should it, therefore, conclude that he does not exist ? This is exactly what many of our scientists have done. As a cardinal starting-point in all their lines of argument they admit the existence of nothing but quantitative, demonstrable objects. Atheism is the basis of their argument, and, necessarily, Atheism must be in its conclusion.

Should I adopt the hypothesis that all Matter which exists must be visible to the eye, I should compel myself to conclude that the air, that the atoms, and that many gases were mere figments of the imagination. My faulty method of inquiry would land me in grossest errors.

We by faith accept the fact, and Reason approves, that a universe exists, though we comprehend but a little of what is embraced in that fact. Why, then, may we not accept the fact that a personal God exists, though by searching we cannot find him out to perfection?

In the fifth chapter of this treatise we have noticed at length the pregnant truth that the deepest and the profoundest part of man's nature was the emotional, and in the thirteenth chapter we have set forth the nature and the power of Conscience. We have further urged that these elements of human nature should be constantly subjected to close observation, for in many particulars they may be the instructors of Reason. It is found that every moral and spiritual emotion of the Mind has God for its objective and leads to him. "Feel after him," said Paul to the Athenians, and this was wise instruction, for feeling cannot fail to find him. Nothing can intervene between God and any of our feelings of duty, accountability, responsibility, hope, fear, dependence, guilt, peace, and joy. The language of a consciousness of guilt is, "Against thee, thee only, have I sinned, and done this evil in thy sight." "O Lord, I will praise thee: though thou wast angry with me, thine anger is turned away, and thou comfortedst me." Every emotion into which enters the moral element is a wave that wafts us into the presence of the Infinite.

Thus it is apparent that the side of our nature

which lies next to God is the emotional. Intellect can think of God, can study his attributes and character, examine his word and his works, and a richer field of thought the universe does not present to the Mind; but to find him, to know him, and to enjoy him, the emotional part of the Mind must act in the channels of faith, love, peace, and hope.

§ 6. *The Narrowness of Materialism.*

The failure of scientists to find God as a material factor, or as in any way an element of science, was to have been expected. Their idea that mathematical quantities constitute the measure of man's Mind and of the universe, excluding all recognition of a Creator, is a limited and shallow conception of the phenomena of nature. Within us and without us thousands of facts exist which neither line nor plummet, nor measuring rule nor figures, can touch—things which to time and space sustain no relation. Truth is a unit, harmonious and beautiful; but a part—a torn fragment—taken for the whole, is a distortion, incapable of rectification and of ungainly aspect.

But few scientists are satisfied with their attempt to solve the problems of the universe on the basis of Matter and within the limits of pure Reason. Tyndall, Virchow, Darwin, and Spencer waded too long in the midst of oppressive and insoluble mysteries to hope that their labors had reached a finality in science. Mr. Tyndall says: "Having thus exhausted

physics, and reached its very rim, mighty mysteries still loom before us." The idea that what Reason can see in Matter is the sum total and limits of knowledge should excite only a smile—a smile of pity or contempt, as one may chance to feel. "We try to soar in a vacuum," says Tyndal, "when we endeavor to pass by a logical deduction from brain molecules to processes of thought." All mental phenomena are, therefore, insoluble mysteries. The deepest longings of the soul are of unknown origin, and for their gratification they can make no provision except what may be found in dirt. The least that we can properly do as investigators, is to take man's entire capacity as the measure of the universe; but it is more than likely that his faculties, as now developed, give him access only to a few fragments of either the material, moral, or spirit world. Were all his faculties so increased in acuteness and strength that he could handle atoms as he can now handle sand—perceive the interstellar ether, if there be such a substance, and grasp the distance of a million miles as he now can of one mile—also receive a corresponding increase of moral and spiritual vision, it is probable that then he would be as able to recognize clearly the verities of the vital and spirit world as of this. That such a destiny awaits the development of man's faculties there is reason to hope; and there is reason to believe that man's most far-reaching advancement is yet to be made in the department of the moral and the spiritual.

Through the medium of his own moral nature, man should recognize a moral universe, and though limitations and imperfections characterize the parts that come within the range of his experience and observation, yet it is possible for him to grasp those laws and principles which foreshadow a perfection that is to come. Incomprehensibly vast and varied are the substances and forces of the universe; and the little we know may be taken as indicative of a land of uprightness into which nothing can enter “that defileth or maketh a lie.”

There are basal elements of right and wrong which are unchangeable and eternal, and they indicate that the character we form fixes our destiny. Thoughts and feelings of moral responsibility are incorporated in man’s nature, and nothing can eradicate them. The Nemesis of heathen lands is the incarnation of this idea. Duty, responsibility, are but other words to express man’s conscious relation to God. He feels that none but God can know or judge the thoughts, the feeling, and the secret purposes of his heart.

§ 7. Faith and Spiritual Life.

No item of history stands out more conspicuously than that man is a religious being; so much Mr. Tyndall admits, and he urges that provision should be made to meet its wants. As are the Senses to the physical world, and as is Reason to the world of ideas, so is man’s religious nature to God and to

the moral world. What the Senses are to Reason, Reason is to Faith. Reason is the basal element of the spiritual Life.

The man known to history, secular and sacred, is, with a few exceptions, spiritually and morally, low down in the scale of being. Nothing has been too mean to be worshiped; no crime too high to be committed. Often the mightiest in intellect are the most groveling in morals. The history of the human race is mostly a history of profligacy and crime. The want of an elevating and directing spiritual nature is the root of man's difficulty. To supply this lack is the genius of Christianity.

The subject of a philosopher's reasoning may be the existence and the attributes of God, his own immortality, his mission and responsibilities; and yet no practical act may follow the conclusion of his argument. He reasons, not from moral impulses, but to adjust the links in a chain of logic. The idea of performing the obligations he demonstrates to exist, takes but the slightest hold upon his conscience. When did Goethe allow the following sublime Christian ideas to take effect in his life? "I am fully persuaded that the soul is indestructible, and that its activity will continue through eternity. It is like the sun, which to our eyes seems to set in night, but it has in reality only gone to diffuse its light elsewhere." When man's spiritual energy and activity shall equal his intellectual vigor, his lack of moral adorning

will be supplied. The spiritual man will then be as sensitive and quick to the call of duty and to moral distinctions as the eye is to light, the ear to sound, or the intellect to ideas.

Man's spiritual capacity, the highest endowment of humanity, our modern philosophers ignore. Because Reason, speculating upon Matter, fails to find a soul and a God, therefore they become Agnostics and Atheists. It is the province of the Senses to receive impressions, of Reason to think, and of the Spiritual to feel and trust the Infinite.

Faith is the trust and the repose of the Mind when the labor of the reasoning process is over. Faith is a battery charged with all the electric forces which Reason and Logic engender. Faith is the spiritual action of the soul. Faith elevates moral truths into the region of spirituality, and makes them practical. Faith is the embryo substance of things hoped for, and, as such, it is the earnest, the first installment, and the evidence of what is to come. Faith is subjective and objective; it is characterized by the divine Object on which it is fixed; as such, it bears the stamp of the divine Image. Faith in God is God in our faith. Faith brings the will, the understanding, and the affections into a condition of loyalty to the higher spiritual nature. Faith accepts the achievements of Reason as valid, but not exhaustive; and in its own right, and still supported by Reason, it penetrates realms of truth and light which Reason

could never explore. Reason cannot comprehend God, yet it justifies Faith in receiving him in the fullness of his attributes. Reason teaches that a God must exist somewhere ; Faith finds him every-where.

The patriarchs lived as strangers and pilgrims on the earth, looking for a city whose builder and maker is God. Reason taught them that what he had promised he was able to perform. Faith grasped the promise as a chart of life, and the incomprehensible future became a present reality to them. Spiritual and heavenly things, addressed to their faith, had as powerful an influence upon their spiritual nature as visible things had upon their senses, or arguments upon their reason. All departments of life and nature were estimated at their true value. God and the "better country" were as much realities to their faith, as thought was to their reason, or the ground to their feet.

Materialists have concluded, that because the analysis of a dead tissue or nerve will not make us acquainted with these things, therefore they do not exist. Consciousness and experience go for nothing. The lowest and most obscure facts of nature are made universal interpreters. We have aimed to take a wider sweep through the realm of nature, and to concentrate its pure light upon these great problems of Life and Destiny.

CONCLUSION.

IN no part of this long discussion have we uttered a disparaging word in regard to any part of the Matter of the globe. Rather, its constitution has been a delightful study, and we have been equally interested in the mysteries of its atoms and in the properties of their aggregations. We never think of Matter as an inert, passive, brute mass ; but as true substance, every atom of which is a self-centered agent, endowed with forces of its own. The properties of Matter do not belong to it as pegs stuck into holes in a board, but they necessarily arise from the essence of its being, and indicate its only possible mode of existence. Destroy the properties and the substance would cease to be. The entity and individuality of Matter are found only in the atomic elements, and these, because of their smallness, are necessarily objects of intellectual discernment. At proper times and in proper places we send imagination into the field of thought to do important work ; and it will be well for science when we allow intellect, as in this case, and astronomy to do the work of both the telescope and microscope. Intellectual discernments are legitimate exercises of the Mind.

From the foregoing survey taken of nature, we may now inquire: Can Mind accept, as truth, the hypothesis that this world is composed solely of material substances? Is there a trace of a law or

process discoverable in nature which could bring Matter into existence? If vitality is not a force or an energy of Matter, can it exist without an antithetic cause of its own? Have we the slightest proof that Matter can work itself into organic structures? and that Thought, Will, and Feeling can then be the outcome of such Matter? Can poetry, eloquence, and mathematics be the product of the albumen and carbon of brain stuff? Can morality and responsibility be predicated of mere dirt? If man is only Matter, does not the silence and the rottenness of the grave complete at once his history and his destiny? Can he possess any other immortality except that which is common to all Matter?

It was because questions such as these were asked by the people, and because answers were not swift in coming, that this treatise was written. The grossest skepticism was usurping the place of Christianity in the family, the workshop, and halls of learning.

But this condition of society is the natural, and, we trust, the transient result of the supreme attention which scientists for some years past have given to physical studies. The laboratory, the microscope, the telescope and spectroscope, have, as keys to nature, unlocked its secrets, and given the world many brilliant revelations. A sort of intoxicating interest has been given to the study of Matter and organic nature. The Mind, long shut up to the contemplation of astronomy, geology, and a universe of Matter,

finds itself in a world of vast proportions, and it so fully absorbs these things, that all things else gradually become less and less, and finally disappear altogether. Having passed through this experience, Materialists, through books, magazines, and lectures, have reached and charmed the public ear till all classes have learned to regard Matter as the only proper subject of scientific interest. It is not, therefore, a mystery that society should feel the chill of icy Materialism.

By not understanding the subject, and by making improper concessions to Materialism, most Christian writers, during the last half-century, have really damaged the cause they labored to subserve. Others have done worse still by the indecent haste with which they have labored to harmonize the teachings of the Gospel with the first crude deductions of the Physicists. Another class of writers, in their eagerness to assail the enemy, have failed to secure a defensible position for themselves, and a school of vital philosophy, having clearly defined principles, is yet to be established.

If Life cannot be regarded as in itself a Real, and if to Mind a substantive character cannot be conceded, then the Vitalist has no ground on which he can stand. But if we have not misread the testimony of nature, this is primarily a vital universe, and for the purposes of its development and manifestation some fifteen different kinds of Matter have been correlated to it.

The best proof we can give a doubter of the existence of any thing is to show it to him, and on this principle we have brought vital elements as fully into the field of observation as any substance of any kind *can* be brought.

We have attempted to examine a few crucial facts in the material and vital worlds, to explore their hidden paths and winding ways in the light of their own properties and phenomena, and to seize upon strategic positions here and there, which may be held for the defense of this wide realm of truth. Special care has been taken to make each argument complete and independent, and yet stand within supporting distance of all the rest.

The fixity of the atomic essences, and the necessary unchangeableness of their dynamic forces, are facts of primal importance in this discussion; for if in either respect change were possible, we should never know what to expect in the material world. What is gold to-day might be iron to-morrow, and the diamond stud might blossom into a rose and fade away. But as nature has not registered an instance in which Matter changed its essence, or suffered it to be changed, it is possible for us to know exactly, and from age to age, what its properties are and will be.

It is this fact which has made fruitful the time and study scientists have bestowed upon the constitution of Matter. Within the past few years these researches have been accelerated by the aid of chemis-

try, microscopy, spectrology, and the ambition of the student, urged on by the excitements of discovery. We have evidence that the Matter of our globe is identical in kind with the Matter of all the known worlds in space, and subject to the same laws. In the Matter of the laboratory, the universe is epitomized, and there may we witness the operation of its forces from the play of lightnings to the clash of an atom of oxygen with two atoms of hydrogen, producing a molecule of water.

It is the wide scope and the minuteness of our knowledge of Matter—its constitution, its properties and forces—that warrants, in the absence of contrary evidence, even the negative conclusion, that vitality is not inherent in it.

In regard to the essence or nature of substance, whether material, vital, spiritual, or mental, or to a solution of the profound mystery of being, we are still as much as ever at sea and in the dark. Below us are atoms the microscope cannot reach, and above us stars so distant that probably distinct rays of their light do not reach our telescopes; and it is probable that the different orbs—stars and atoms—are about equally distant from the observation of Sense-organs. In this vast universe of littleness and greatness man's faculties can take but a limited range in either direction; and we simply know that different substances exist, and that each different kind is endowed with forces and properties peculiar to itself.

As the result of tests and trials innumerable, Materialists, including the champion himself, Dr. Bastian, have apparently abandoned all hope that the theory of spontaneous generation will ever be demonstrated as a fact. In their long and laborious struggle to establish the Positive Philosophy they saw clearly that this was more than a strategic point; they felt that it was their only possible base of supplies; and in its loss may be heard a murmur of despair. The contest for spontaneous generation enlisted the brightest intellects of the age, and of different nationalities in its behalf, but genius is always vanquished when arrayed against the laws and the order of nature. Nothing has been left undone which trained scientists could do, aided by all the resources of the laboratory, to achieve success. They were imprudent when they allowed their zeal and ambition to urge them into the hazardous work of deduction, the work of induction having been hardly commenced. In the absence of Involution, Evolution was set in motion. With not a trace of Mind or Life in the basal facts of their philosophy, as causes, they have given us the phenomena of the intellectual and vital worlds as results. Along these lines we have assumptions upon assumptions, which have not in a single instance been verified by a fact. The first foundation-stone of Materialism is yet to be laid. The hypothesis has no standing; it is a draft upon a bank in which it has neither deposit nor credit.

No fact in nature can be clearer, or of greater importance to philosophy, than the correlation of Matter and Life. The vast and conspicuous results of this arrangement is the existence of the organic world, vegetable and animal. An organism, high or low, is a point where the two distinct worlds meet—the vital and material—and so blend into one, as to form an organic unit. The dirt of a flower-bed seems to be coarse and gross, but when vital seeds have taken it up and wrought it into the living, beautiful, fragrant flowers, basking in a summer sun, it is not changed, but its grace and capacity have been made manifest. An organism is a kind of Life incarnated, and in the incarnation, the true glory of Matter is revealed. Matter and Vitality are essential, each to the revelation of the other's power and beauty.

With the microscope we can follow Matter till, as atoms, it disappears where, to our minds, all seems to be infinity—where substance becomes attenuated to the fineness of all that we can conceive to be real in Life or Spirit.

Besides the substances known to the chemist there may be other kinds and orders of substance, which, as yet, no philosophy dreams of. The assumption of the existence of the inter-stellar ether seems to be a necessity. But what is this ether? If it were Matter, the properties and forces which necessarily abide in its essence would compel it to behave like other Matter. Affinity and gravity would cause the aggre-

gation of the atoms, forming visible ponderable masses. What, then, is the substance called ether? We know not, and yet we know as much of its essence as we do of the essence of oxygen, hydrogen, or of any other element of Matter. May there not, then, be substances which are neither Matter nor Ether, but Life, Mind, and Spirit? On any other hypothesis than a vital cause can vital phenomena be accounted for? But what is vital substance? We cannot conceive it to be substance more refined or attenuated than the ether or the atoms of Matter. Or, as is probable, the different essences are so unlike in nature that there can be no comparison between them. A vital essence may be as fully substantive as a material essence, and yet in the absence of the laws of affinity and gravity there could be no aggregation of its units, hence its presence could not be detected by chemistry. Sexually one vital element is correlated to another, but the unit of being thus formed must exist in isolation as an entity, distinct from other entities. Matter, ether, Life, Mind, and Spirit must be examined, each in the light of its peculiar properties and laws to be understood.

What specially characterizes material units, so far as we are permitted to know them, is, they exist under the laws of affinity and gravity, and as a result we have the extended and ponderable mass of Matter; and what specially characterizes vital substances is, (1) negatively, the absence of material qualities, and

of subjection to any material law; (2) positively such a correlation of its forces to the forces of Matter that Matter is wrought into organic structures. As each material element contains an essence peculiar to itself, though unknown, and unlike the essence of all other elements, so the vital essence is wholly unlike the ethereal and all kinds of material essence. The wealth of variety we find among material elements may yet lead to the discovery that the universe is rich in substances of different kinds and orders, as centers of power. Monism is a beggarly conception of nature.

A peculiarity of vital forces is, that they control the forces of Matter, and work Matter, not into masses, not into lumps, but into complex and wonderful structures. It is probable that, in some way unknown to us, the ethereal substance plays a part in this operation. We may infer, from the control the vital forces exert over the material forces, that when the two substances come in contact, their ontological characteristics, in respect to tenuity, are not far apart. A Life, as a self-centered unit, is stronger than Matter, and this may be so because it is more self-contained, and none of its forces are expended or dissipated by gravity or affinity. Nor can one vital unit, in any way, expend its force upon another vital unit. Destitute as it is of all the forces of Matter, it is richly endowed with properties of its own of another kind and of a higher order.

Is it any more a logical necessity that we postulate

the unknown atoms, of unknown essence, as an explanation of the lump or solid mass ; or, is it as much of a logical necessity that we postulate the existence of an unknown ethereal substance, as a medium for the transmission of light, as that we postulate the existence of vital substances as the base and the cause of the organic world ?

Let these speculations pass for what they are worth, much or little, the palpable fact remains that in the organic world we behold the union of two kingdoms, as the result of the correlation of the forces of Life and Matter ; and this should be made the basal factor in the study of biology.

It is not possible for a chain to be stronger than its weakest link ; and to know that such defective link exists, and which one it is, is a matter of the first importance. In Mr. Darwin's philosophy there is not only weak links, but at one place there is confessedly a "missing" link, and the diligent search of nearly a quarter of a century, in all parts of the world, has failed to find it. His theory of nature supposes that one kind of Life can become another kind. As if the oak could become a pine, or a lion could, in time, shade off into a sheep ; or as if the horse and elephant and whale and oak could have sprung from a common ancestry ; and underlying the entire scheme is the figment of spontaneous generation, or the possible creation of four or of one original form. In the argument for Materialism, furnished by George H.

Lewes, the irremediable defect is found in his use of the word "conditions." It is often used as either link or swivel or hook in the chain of the argument, and in no case is it possible for the author to explain, or for the reader to understand, its signification. If Mr. Spencer were required to explain, or clearly to conceive, what he means by a "two-faced" "nervous change,"* one face material and the other mental, as the condition of the survival of his philosophy for one year, he would fail. His system is also based upon the hypothesis that at some time spontaneous generation existed. Because of these defects in the argument, Mr. Tyndall says the hypothesis of Evolution, as science, is to be "wholly discredited." The crucial point in Mr. Bain's argument is found in his undefinable and unthinkable and unpicturable something, which by "fits" is both "Body and Mind." As a key-stone to the arch he builds, he gives us the chimera of mere words. Tyndall undertakes to

* As physiologist and chemist, Professor Du Bois Raymond is second to no other German *savant*. Mr. Spencer is neither chemist nor physiologist. Raymond says: "What conceivable connection subsists between definite movements of definite atoms in my brain, on the one hand, and on the other hand such primordial, indefinable, undeniable facts as these? I feel pain or pleasure; I experience a sweet taste, or smell a rose, or hear an organ, or see something red. . . . It is absolutely and forever inconceivable that a number of carbon, hydrogen, nitrogen, and oxygen atoms should be otherwise than indifferent as to their own position and motion, past, present, and future. It is utterly inconceivable how consciousness should result from their joint action."

account for the existence of organic bodies on the ground that a crystalline force has built the structure, but afterward he pronounces the existence of organisms "insoluble mysteries," and calls for a new definition of Matter. He thus clearly points out the insufficiency of his argument. Huxley's position requires him to regard protoplasm, "living or dead," as the same. Thus it is easy to point out the missing or the weak link in all the systems of philosophy which are built upon the hypothesis of Materialism.

But the New Philosophy should not be condemned as wholly worthless. It has brought together and classified a multitude of facts which will be of permanent value to the world. Material and organic nature, in a few instances, has received a new reading which, without doubt, is correct, and, on the whole, real progress has been made in knowledge. But it is a notable fact, that, as the chief result of all this searching investigation, the very thing these laborers were most anxious to find they have proved to be absolutely wanting. Vitality persistently refuses to stand forth as a property of Matter; and Matter, as if weary of its tortures, and impatient, seems to cry out, "It is not in me." The labor put forth has been crowned with success, but not of the kind so anxiously desired by the toilers.

We would apply these remarks with emphasis to the labors of Mr. Herbert Spencer and Charles Darwin. The numerous and somewhat verbose volumes

Mr. Spencer has given to the world contain a pyramid of facts he has collected, collated, and classified. As these fruits of his industry were wrought out on the supposition and earnest hope that spontaneous generation was the order of nature, and as not a shadow of proof can be found to sustain it, his argument is of no force nor value. The facts, however, will remain as a valuable possession, to be wrought by other hands into other structures, teaching a different philosophy.

Since Materialism teaches that organic structures are the results of the forces of Matter, and is unable to furnish samples of different kinds of such processes of nature, of right we demand that it abandon that position. That Matter is incapable of self-organization is the stronghold—the impregnable fortress—of Vitalism. Had its advocates, during the last quarter of a century, perceived the value of this strategic point, and boldly insisted on what they had a right to demand, there would have been less boasting on the part of their antagonists.

It cannot be denied, even by the most hardy Materialists, such as Büchner, Maudsley, and Bain, that the peculiar phenomena called Mental and Vital exist, and philosophy, if it deserve the name, demands that they be accounted for. The New Philosophy boldly steps to the front with the answer: "Matter affords the explanation." In the absence of all proof we deny it, and now we summon the whole Atheistic

and Materialistic school to come forward with their evidence; we put into their hands all the inorganic Matter of the globe, and wait to see them detect in it the least trace of vital or mental activity. We, of right, insist that till they have done this, their deductions of vitality from Matter are mere pretense, and deserve to be branded as frauds. The laws of logic and clear thinking prohibit them from speaking of Biology and Psychology as material products, or developments, until they have permitted us to see them bring Life and Thought from inorganic Matter or from Matter they have organized.

We have not felt it necessary to follow the scalpel and the microscope of the Materialist into the human brain in search of Mind, or make an examination of nerves or nerve centers, or molecules, for proofs or illustrations of any thing in regard to it. At best only the brain of the dead could be examined; and why look for Mind in a place where we know it is not? If Mind, *per se*, is a substance, then there can be no structural connection between it and the brain—only a relation; and the nature or form of that relation is unknown and unknowable; but if there is no mental substance—if the albumen and carbon of the brain-mass do the thinking, then the mystery of mysteries is upon us. The fancied details of the brain's mental processes, as given by Prof. Bain and Mr. Herbert Spencer, are the purest fictions, eminent Physiologists of their own school being judges, and

we have not felt called to show their empty assertions any respect.

The New Philosophy owes its strength largely to the supposed tangible realities of Matter, as distinguished from the fact that Life and Mind always elude our observations. Matter, as substance, is, without question, in the field of observation; its properties and forces are known and measurable quantities; it lies at the base, and is the cause, of different classes of phenomena; and research would be greatly simplified if all the phenomena of the universe could be explained in quantitative terms. To meet this position, we have felt that the fact to be cared for in this discussion, more than any other, is the individuality of the Mind; that, as such, it must be identified in its own true character, and seen in its own light. We have proceeded on the hypothesis that it contains within itself the best evidence, and the only evidence we can have, of its existence and its properties. We have drawn not only a sharp distinction between Mind and Matter, but between Mind and the Life of the body, and assigned to each its proper sphere and function. On this point we have expended not a little labor, and some of the positions taken may seem to be bold, perhaps original and unsafe; but we are confident they will survive unhurt the sharpest criticisms which can be applied to them by either friend or foe. Repudiating the crazy nonsense of absolute Idealism, we adopt the atomic theory of Matter as a

true expression of the constitution of its nature. I adopt the language of Prof. Tyndall as my own: "In fact, it may be doubted whether, wanting this fundamental conception, a theory of the material universe is capable of scientific statement."* In the atoms alone we recognize the entity of Matter, though of unknown essence, and so small that, even when magnified two thousand diameters, it is still beyond the reach of the microscope. The atoms are the different units whose aggregations and organizations make up the material world. Matter, *per se*, is, therefore, very far from being in the field of observation. The properties and forces exhibited by the aggregation of the atoms is all we know of Matter. If, in harmony with all related facts, Mind has been distinctly identified as an individual—as distinctly as Matter, *per se*, or any kind of substance or being can be identified, nothing more should be expected or desired; and in all humility we may challenge the Materialist to bring Matter, as a unit, as fully into the field of observation as we have brought Mind. Mind exists in self-consciousness in a way such that we know it as the individual self, as certainly as we know any thing. Matter, *per se*, is known only as the invisible and intangible antithetic cause of phenomena—its essence is as unknown and as inscrutable as the essence of Life or Mind.

It is not denied by any that mental and physical

* "Fragments of Science," p. 497.

phenomena are often associated together in the same act. In all such cases the question, which is the cause and which the effect? is of prime importance—in fact, it lies at the base of this philosophy. If Matter is the cause of mental phenomena, then Mind is nothing, *per se*—it is a transient resultant. But we have found it easy to produce a multitude of facts to prove that Mind acts upon body, as any one substance acts upon another substance. The simultaneous and diverse actions of Mind and body cannot be explained, or even conceived, on the hypothesis that they constitute a unit of substance. The clearness of this class of facts makes very conspicuous the distortions and insufficiency of Materialism.

The New Philosophy does not recognize in man even the phenomena of the spiritual and immortal elements of his nature. One sole exception may be made in favor of Mr. Tyndall. He says: "Religious feeling is as much an element of the human soul as any other, against which the waves of science on the subjective side beat in vain." If, then, we may inquire, you must leave the religious element in man intact why assail its objective? This part of our being is like a vine which, if it cannot fasten its tendrils upon some branch that will lift it up in the sunlight, must lie prone on the ground. The history of our race, even the remotest remains of antiquity, as clearly indicate that man was made to be a worshiper as that he was made to think or to breathe. Idolatry

is a plea in his behalf for guidance and help. Why should any man desire that “the waves of science” should beat successfully against religion on the “objective side?” If the worshiping element is ineradicably implanted in man’s nature, the fact implies an objective correlative. The seeing organ implies the objective correlative light, and the sense of taste would be a superfluity—a monstrosity—if there were no flavors. Is it with Mr. Tyndall a hope or a fear that the “waves of science” will so “beat” upon the objective “side” of religion as to banish the idea of a personal God and all conceptions of intelligence and design in the universe from the Mind? Whatever may be his aim and object, such is the tendency of his philosophy.

If we have identified the Mind as an individual spirit-substance, we have also demonstrated, not only the possibility, but the clear probability, of its immortality. When there exists a conviction of the existence of Mind as an essence—as a Real—the idea of its destruction or annihilation cannot take on the form of clear thinking. How nothing can become something, or something nothing, transcends the power of thought. If it were certain that such facts ever occurred they would be classed among the profoundest mysteries of nature.

The fact cannot be denied that the religious element in man’s nature may become so quickened and developed as to adjust his character and conduct to

its correlate object of worship and to its eternity. The law of faith, in its proper sphere and relations, is a part of nature; as much so as reason or gravitation. Between man and the objective world Faith is an ever-present necessity in the daily affairs of life; in its highest application it bridges the gulf between him and the Infinite and Eternal.

A class of scientists, such as Maudsley, Bain, and Lewes, have vainly attempted to force upon the world the acceptance of the problems under discussion as established science. Having exhausted the argument on their side they think the discussion should close. Tyndall and Virchow, as we have seen, are not of this opinion. As the theory of Evolution is still in the hypothetical stage, Tyndall says, the "ban of exclusion should fall upon it." All the attempts made to pass from the physics of the brain to mental action have confessedly resulted in absolute failure. Sift the New Philosophy, separating hypothesis from fact, and the residue would not, as science, be worth staying for, or carrying away. On the start Materialists made the fatal mistake of supposing that Matter and its reaction as thought was the sum total of the universe. In the first place the discordant elements of this proposition could not be worked, and the further they were forced, the more palpable, and aggravating their incongruities became.

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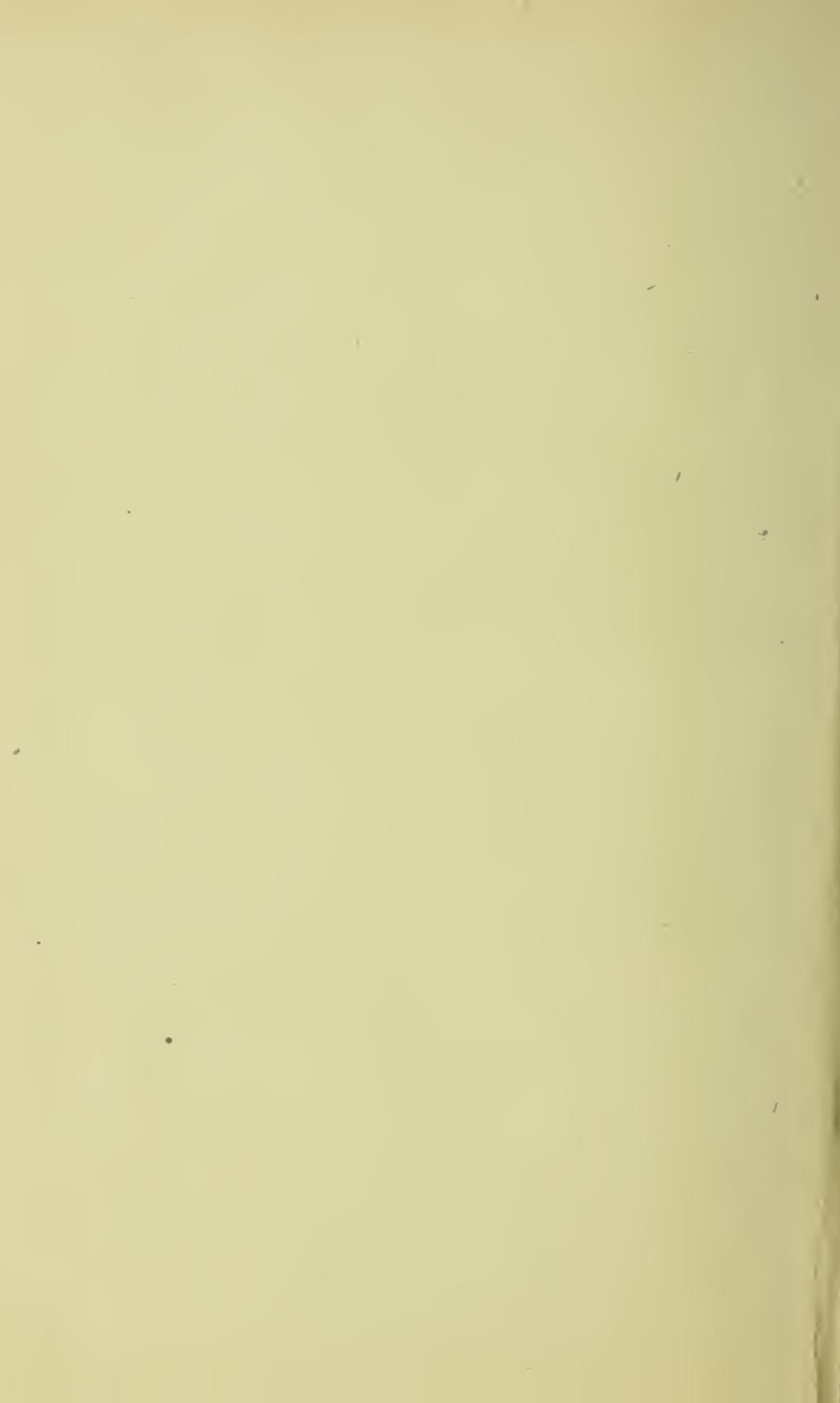
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